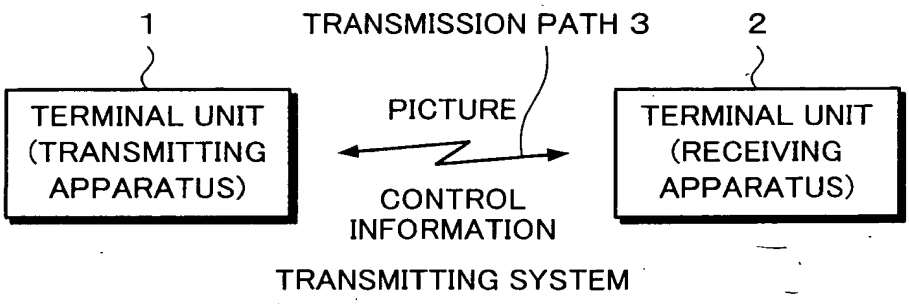
Fig. 1



TRANSMITTING SYSTEM

Fig. 2

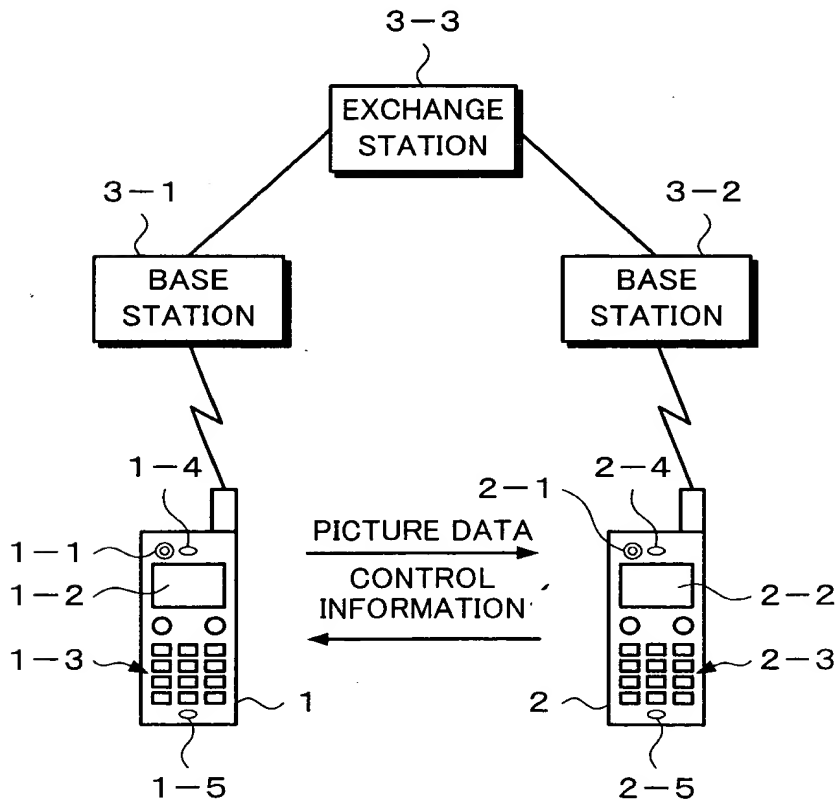


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Fig. 3

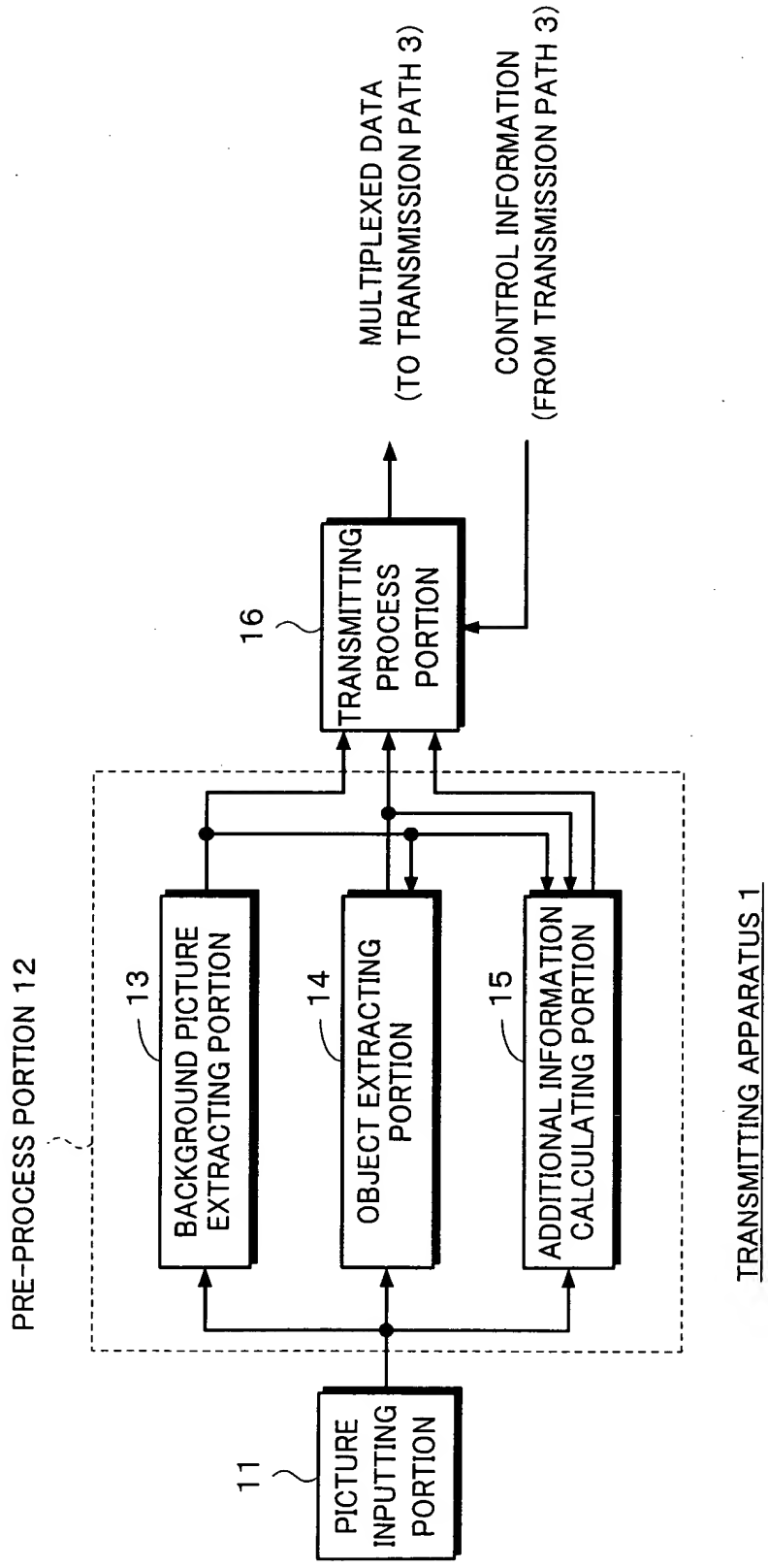

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Fig. 4

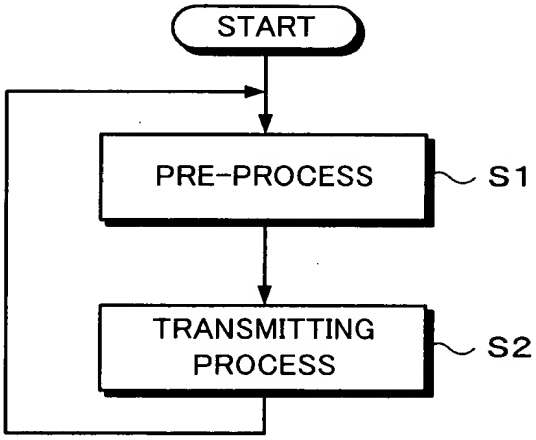

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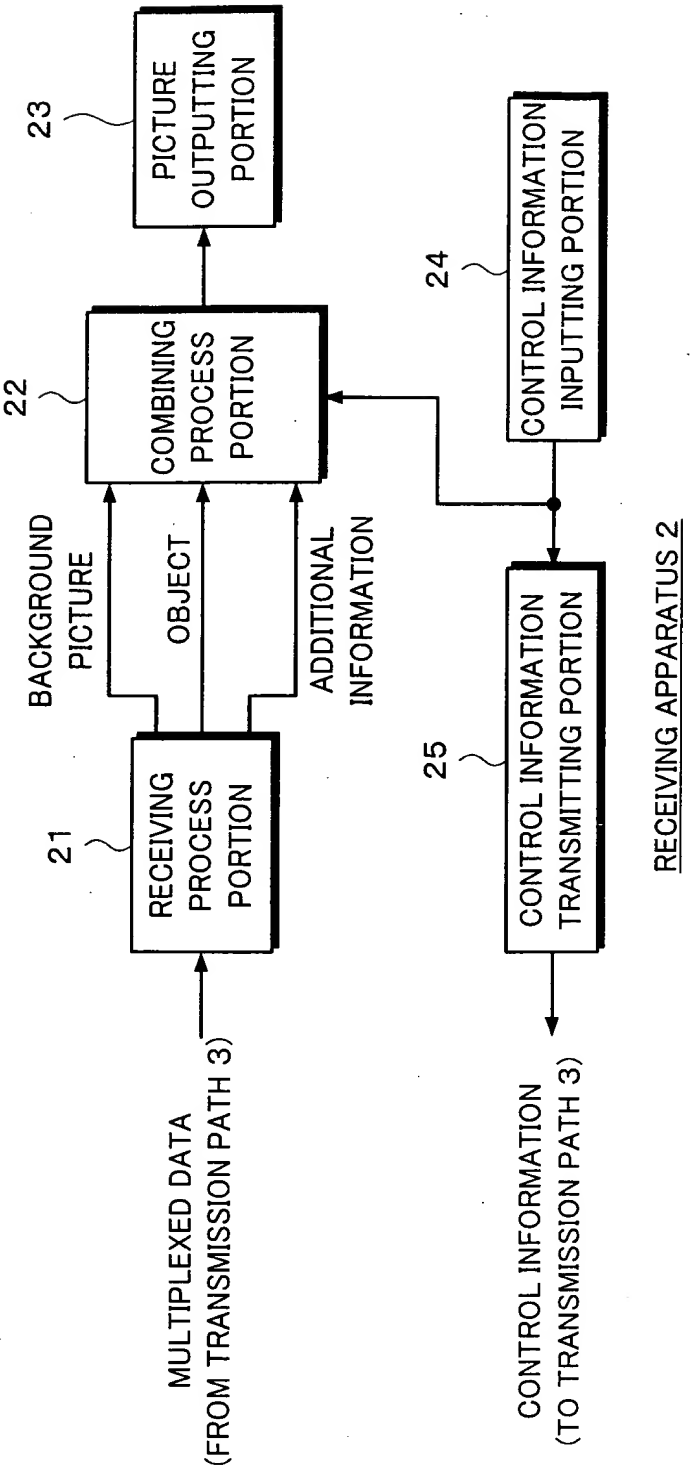
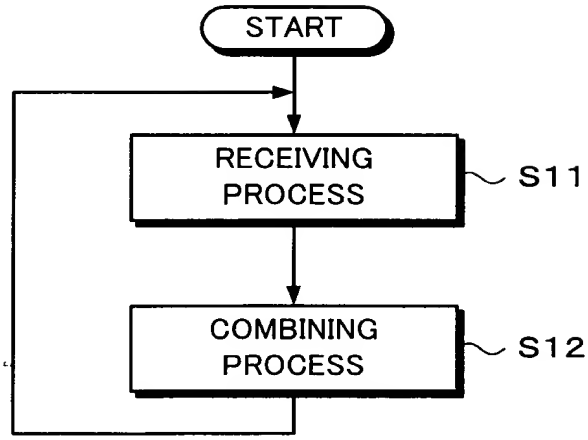
Fig. 5



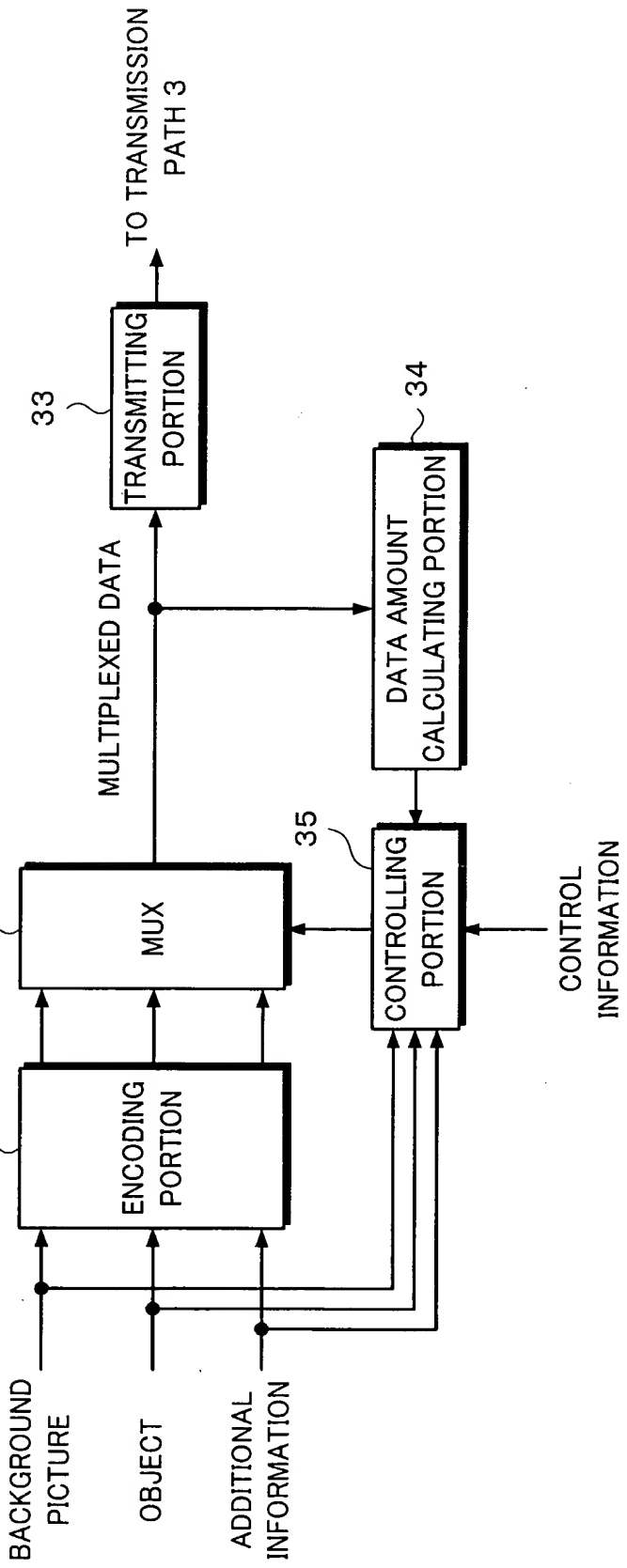
09807114 "050504 TO

Fig. 6



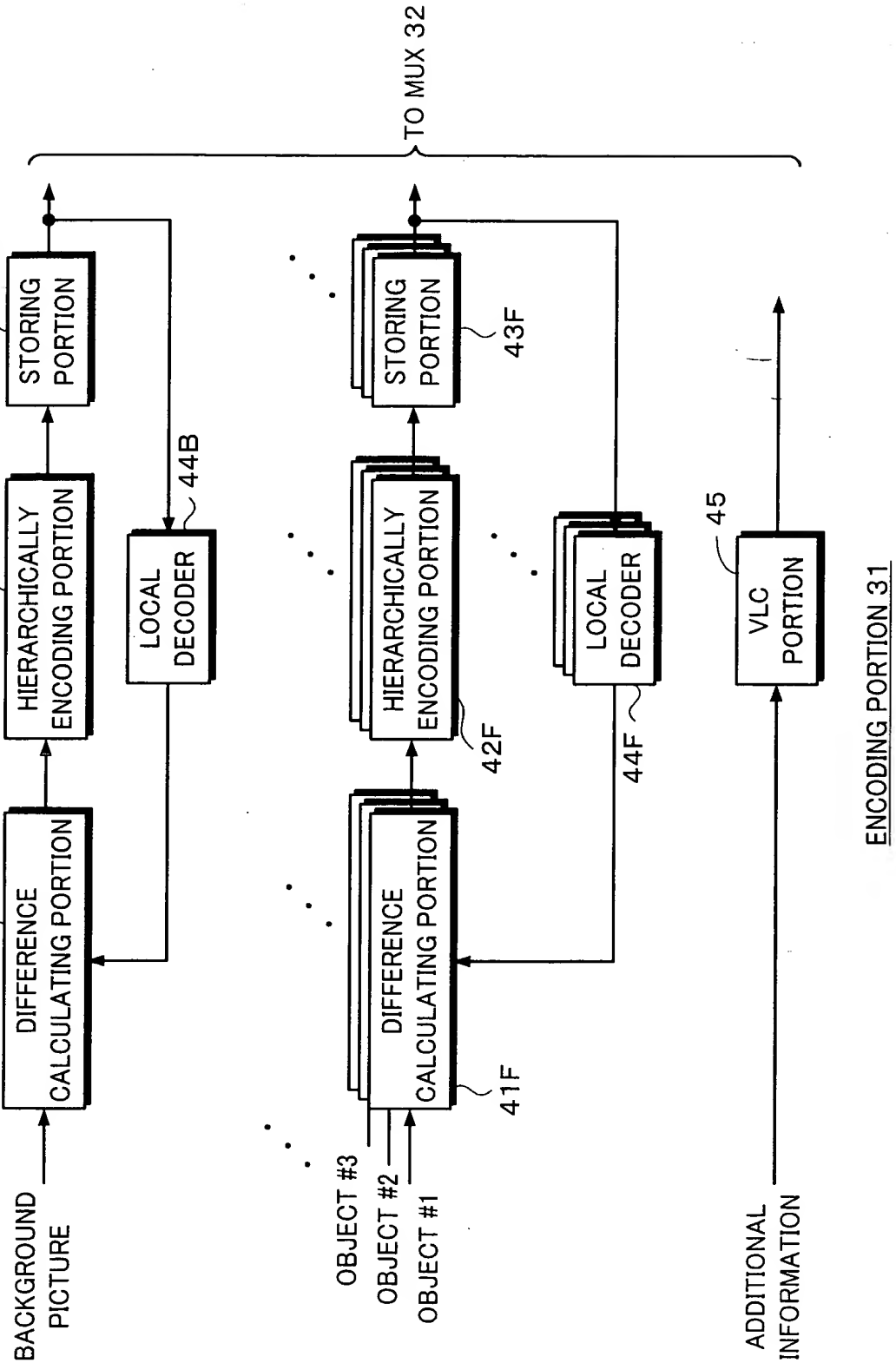
T05T50 "TT/Z0860

Fig. 7



T057S0 "ATTZ0860

Fig. 8



09/807114

Fig. 9A

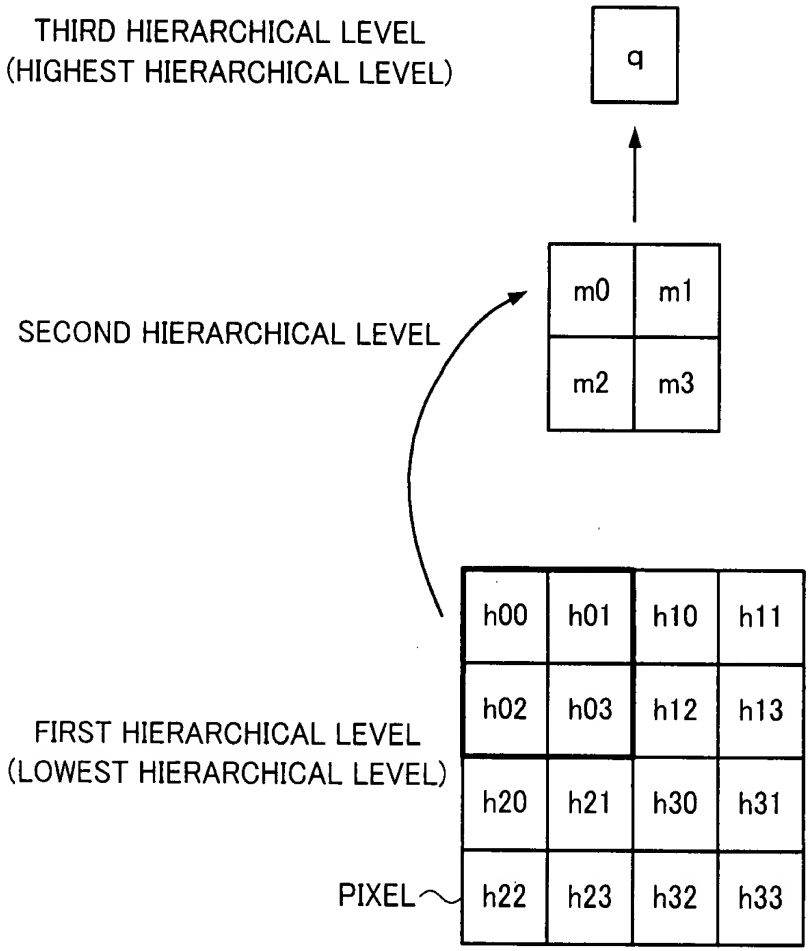


Fig. 9B

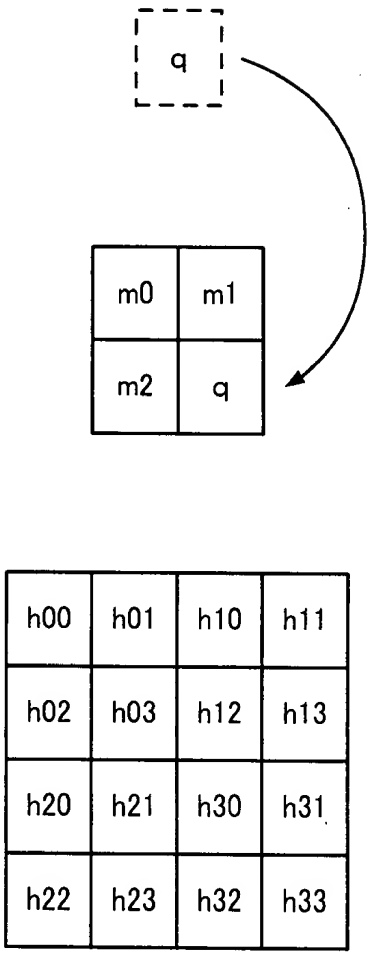


Fig. 9C

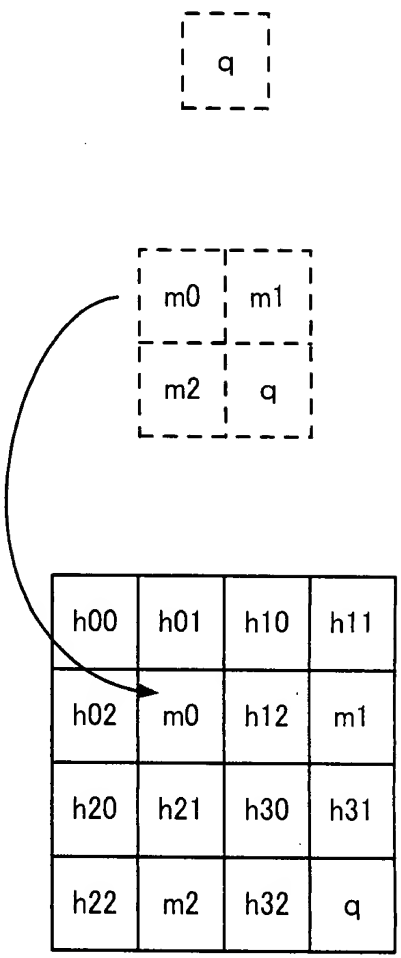
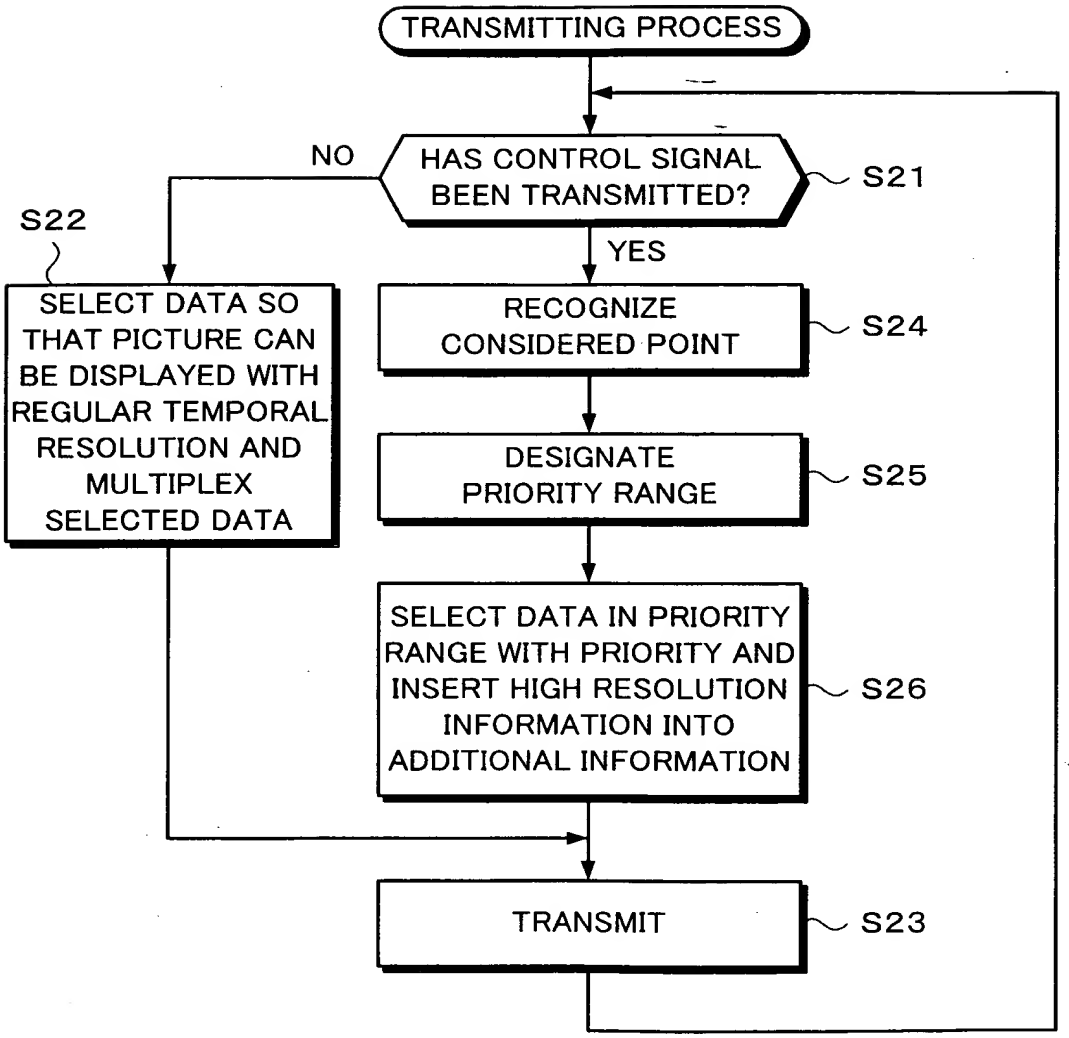


Fig. 10


TRANSMITTING PROCESS
HAS CONTROL SIGNAL BEEN TRANSMITTED?
S21
NO
YES
S22
SELECT DATA SO THAT PICTURE CAN BE DISPLAYED WITH REGULAR TEMPORAL RESOLUTION AND MULTIPLEX SELECTED DATA
RECOGNIZE CONSIDERED POINT
S24
DESIGNATE PRIORITY RANGE
S25
SELECT DATA IN PRIORITY RANGE WITH PRIORITY AND INSERT HIGH RESOLUTION INFORMATION INTO ADDITIONAL INFORMATION
S26
TRANSMIT
S23

FOSTER+FREEMAN

Fig. 11

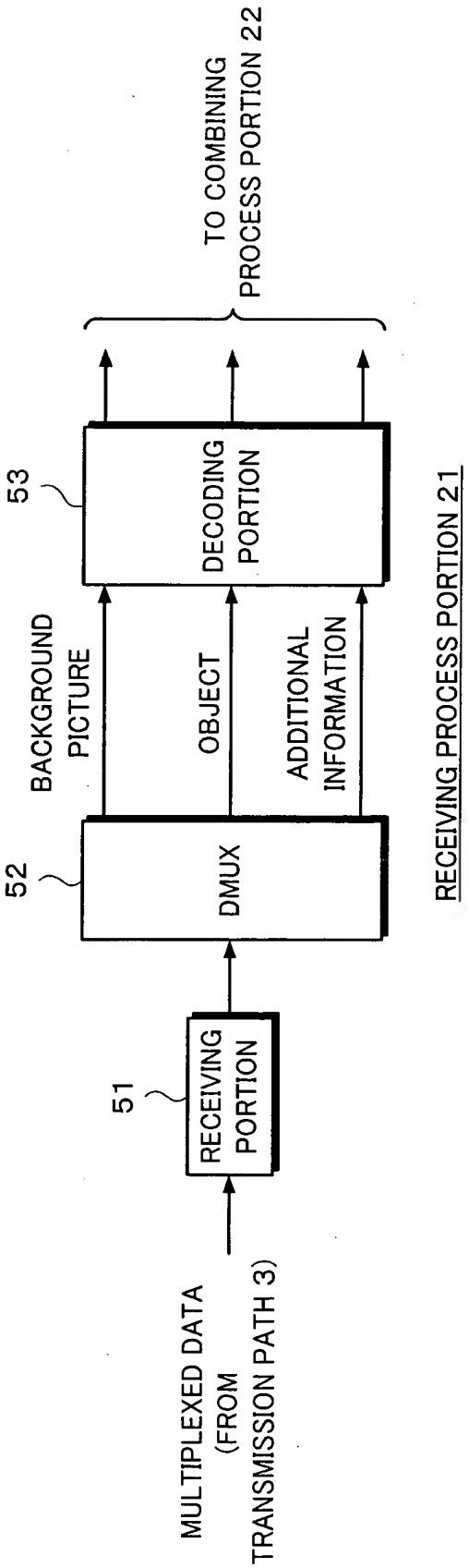


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Fig. 12

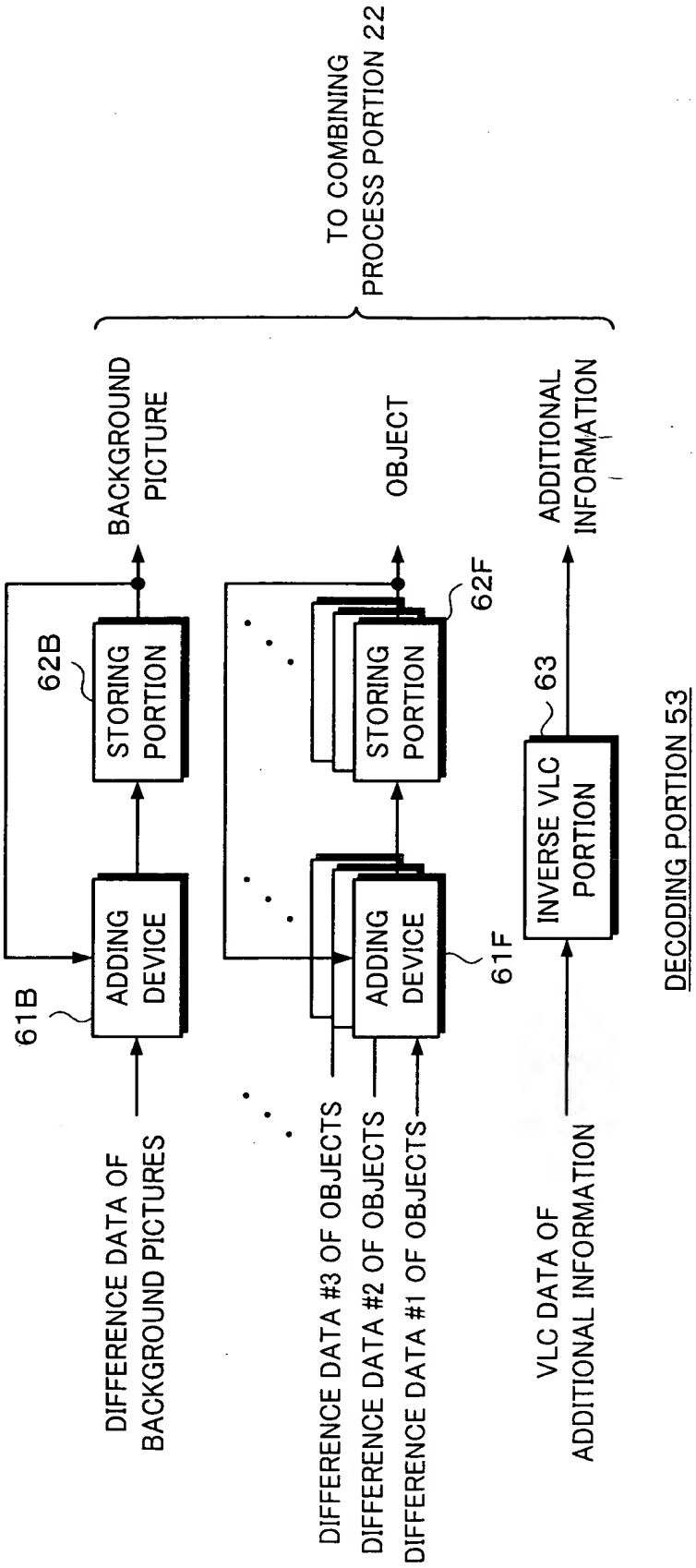

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Fig. 13

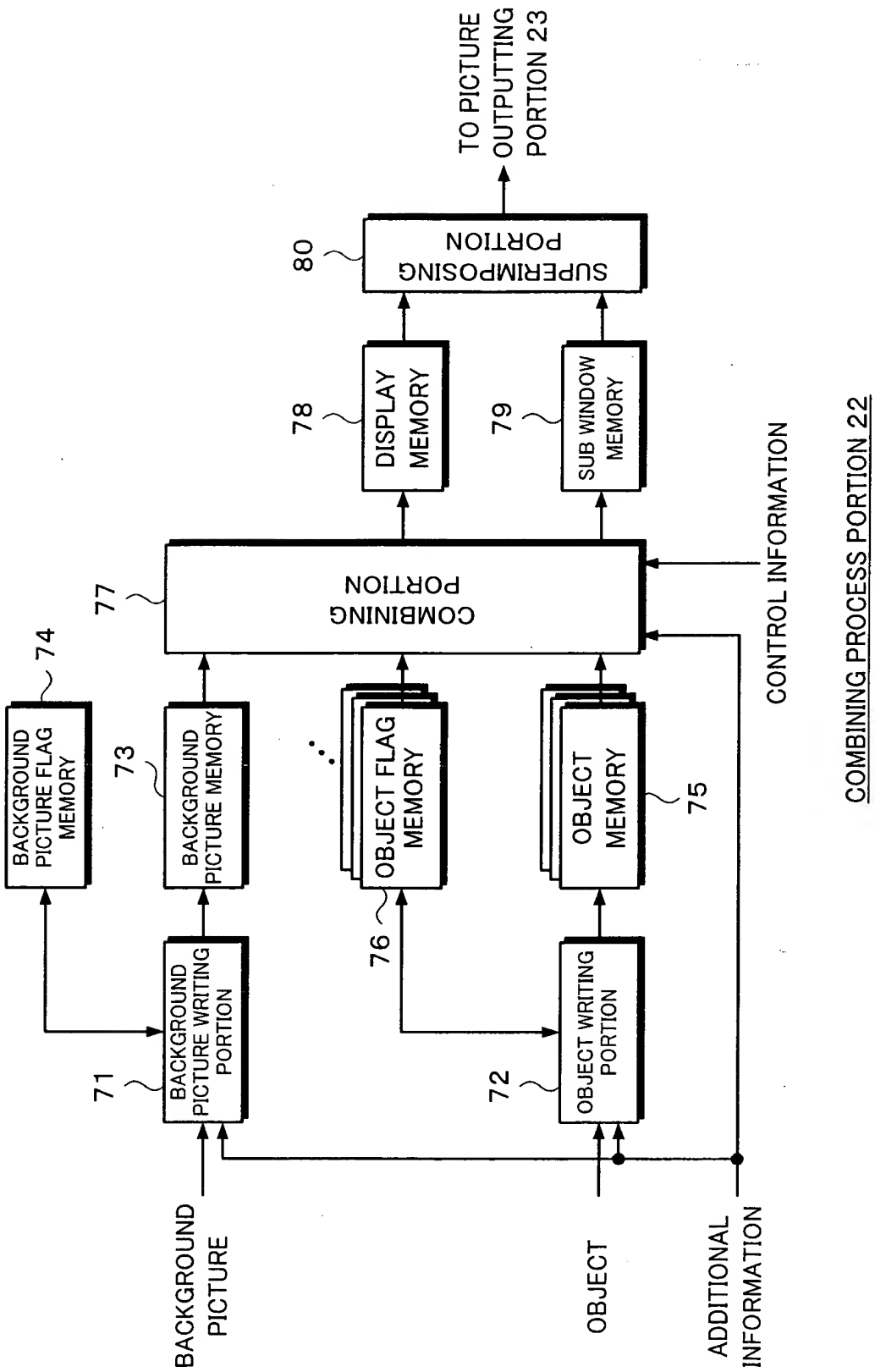
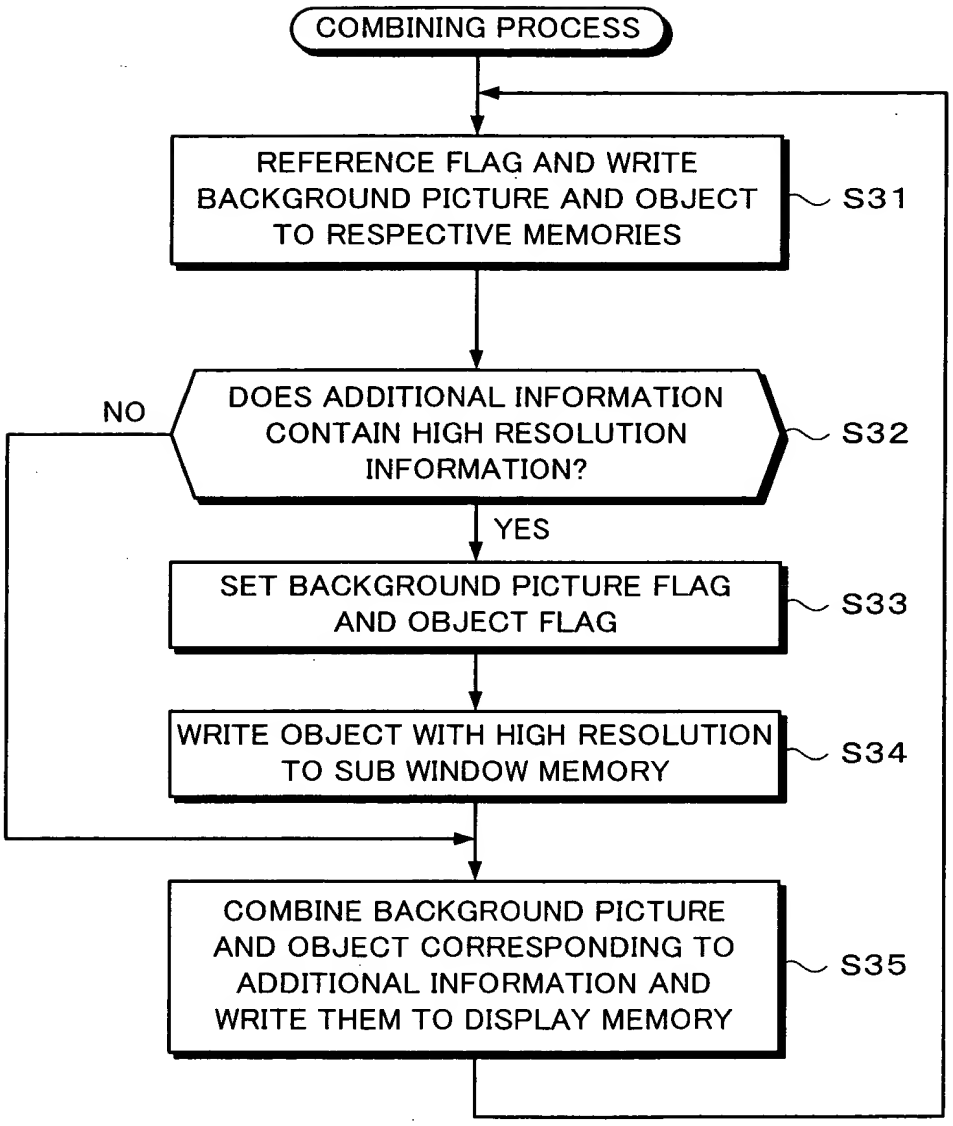
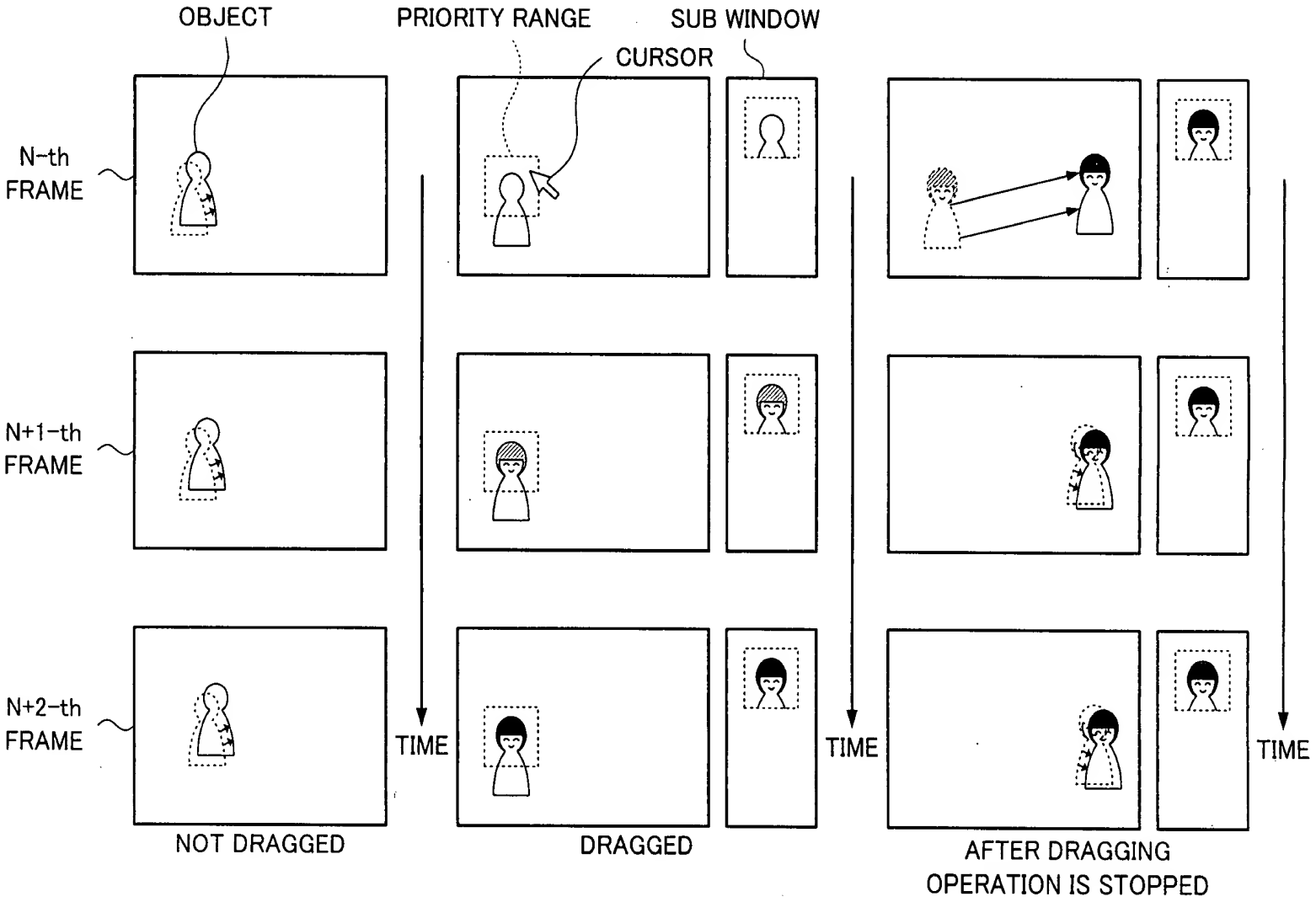


Fig. 14


COMBINING PROCESS
REFERENCE FLAG AND WRITE BACKGROUND PICTURE AND OBJECT TO RESPECTIVE MEMORIES
S31
DOES ADDITIONAL INFORMATION CONTAIN HIGH RESOLUTION INFORMATION?
S32
NO
YES
SET BACKGROUND PICTURE FLAG AND OBJECT FLAG
S33
WRITE OBJECT WITH HIGH RESOLUTION TO SUB WINDOW MEMORY
S34
COMBINE BACKGROUND PICTURE AND OBJECT CORRESPONDING TO ADDITIONAL INFORMATION AND WRITE THEM TO DISPLAY MEMORY
S35

09/807114

Fig. 15A Fig. 15B Fig. 15C



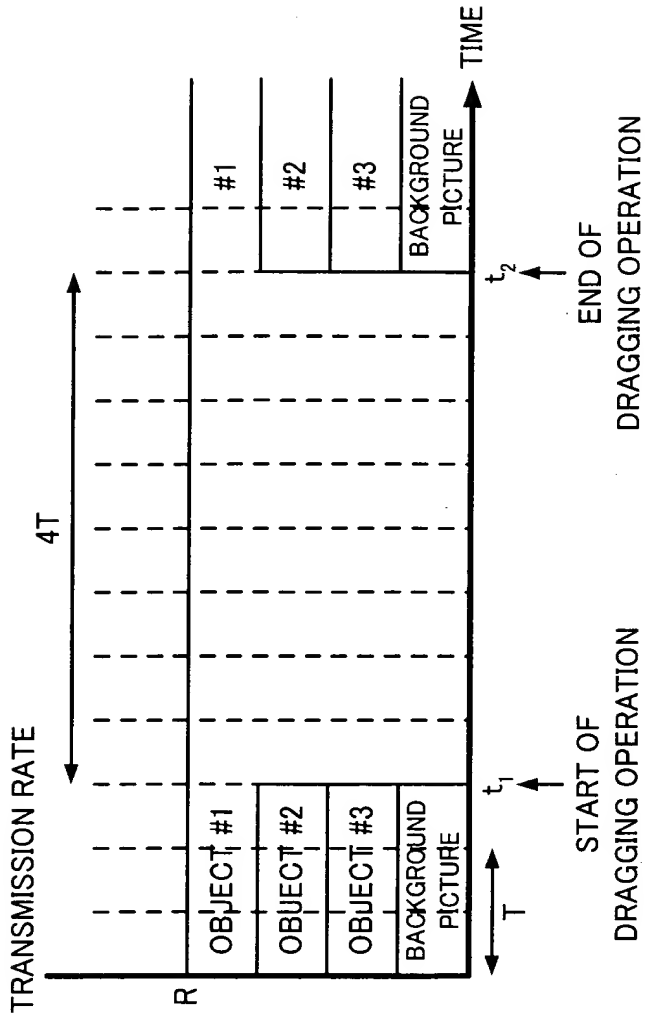


Fig. 16A

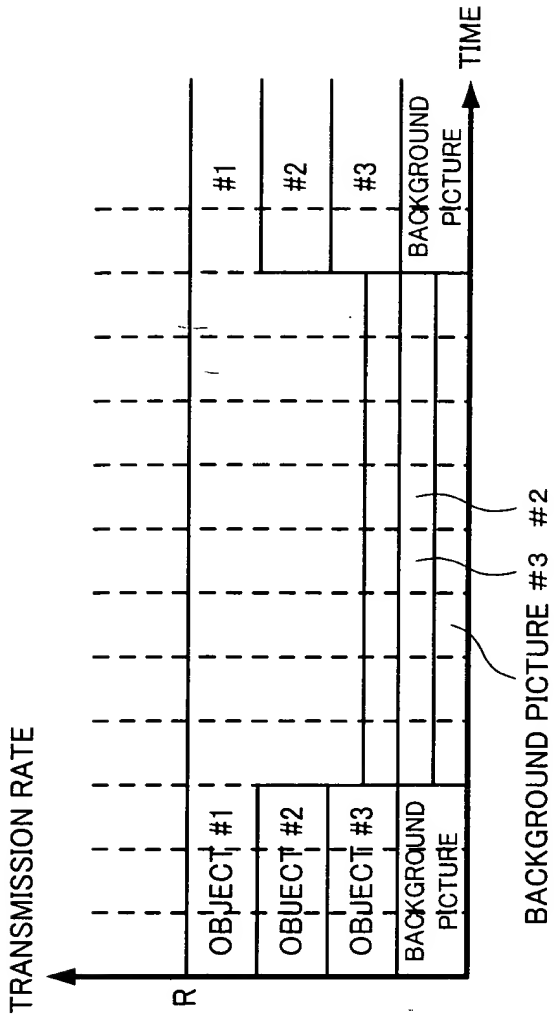


Fig. 16B

US20020176625

Fig. 17

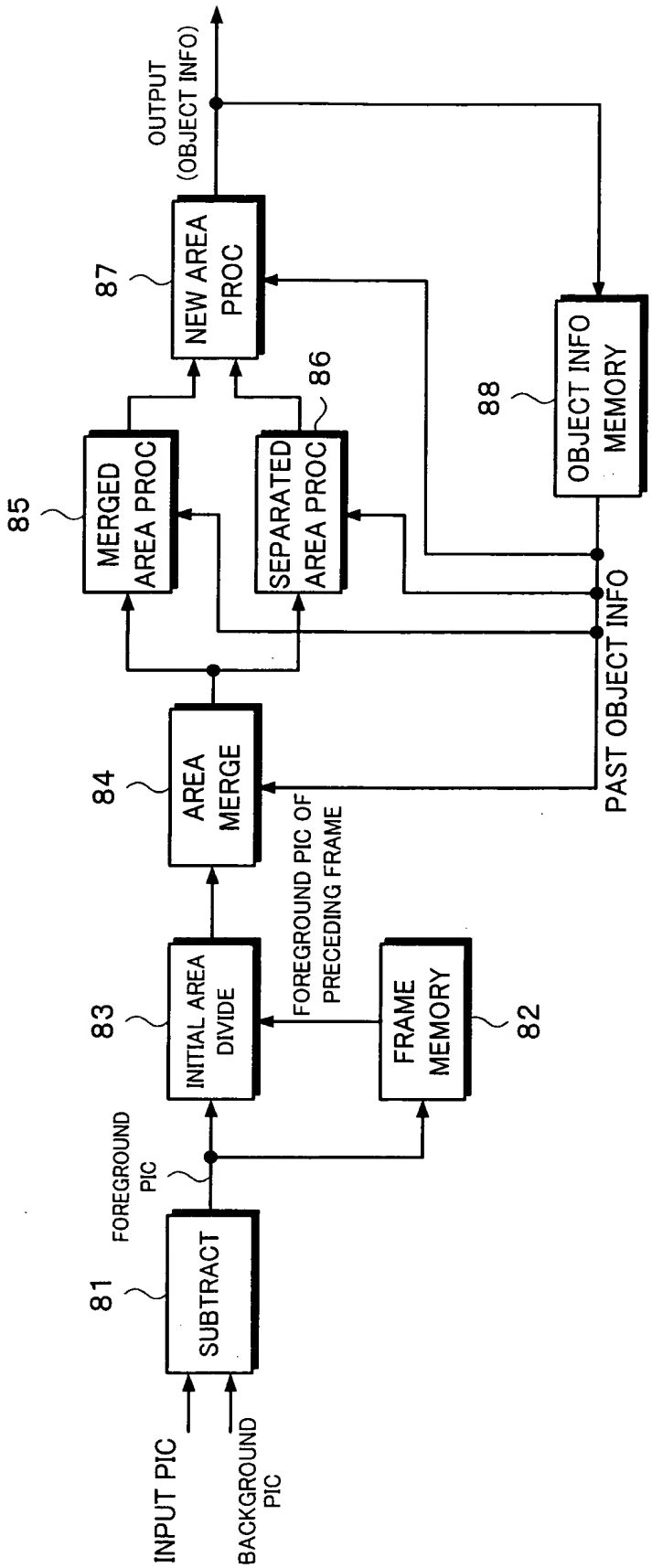


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Fig. 18A

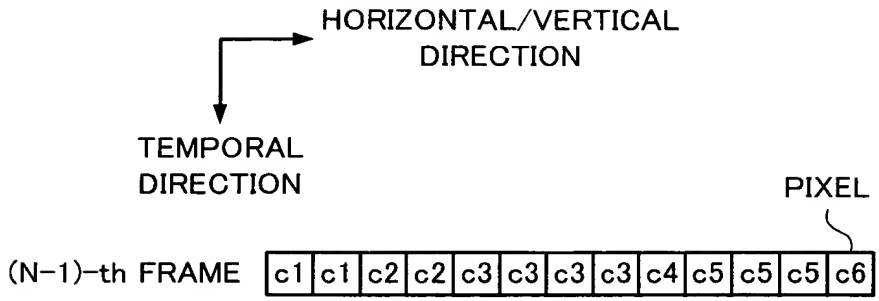

Fig. 18B

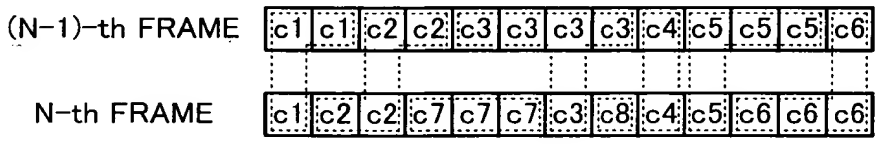

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Fig. 19A

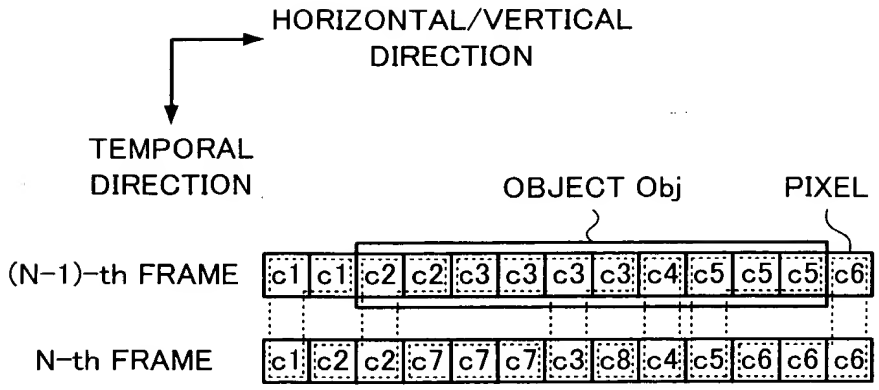

Fig. 19B

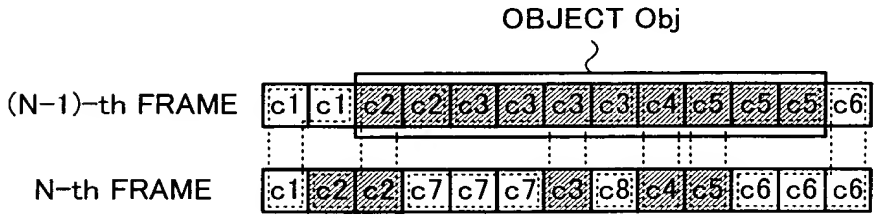

Fig. 19C

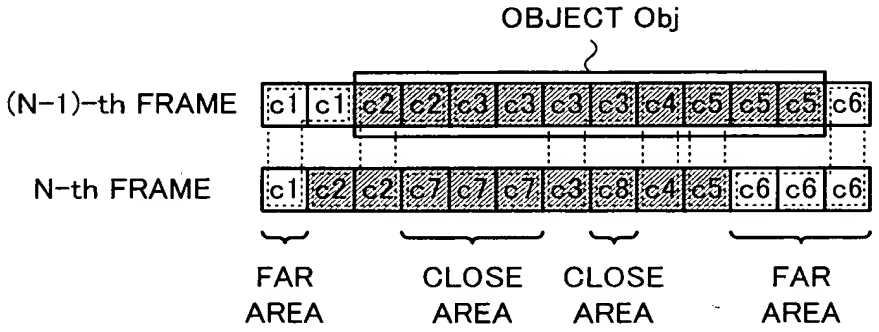

Fig. 19D

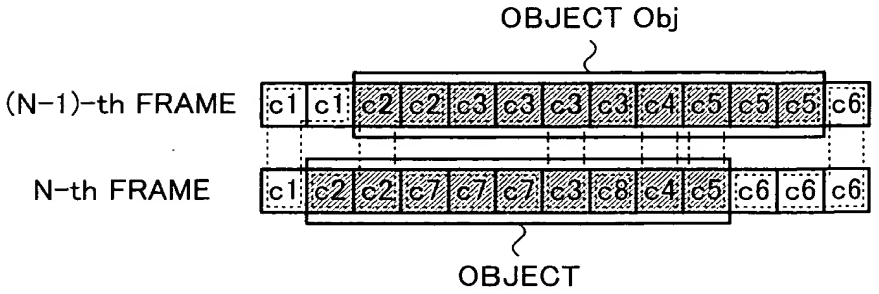

Fig. 20

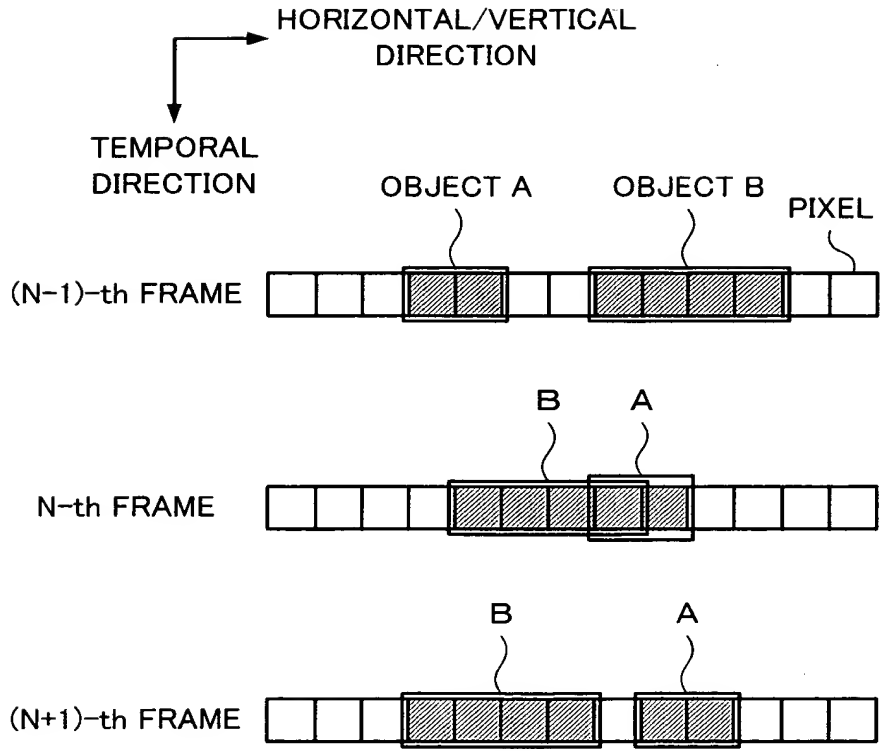
HORIZONTAL/VERTICAL DIRECTION
TEMPORAL DIRECTION
OBJECT A
OBJECT B
PIXEL
(N-1)-th FRAME
B
A
N-th FRAME
B
A
(N+1)-th FRAME

Fig. 21

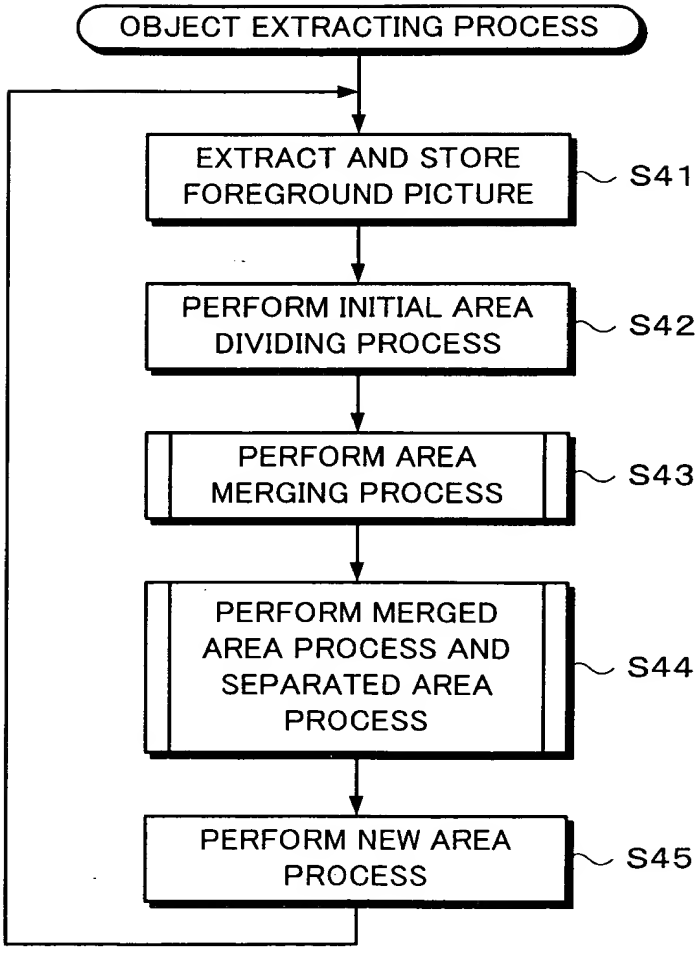
OBJECT EXTRACTING PROCESS
EXTRACT AND STORE FOREGROUND PICTURE
S41
PERFORM INITIAL AREA DIVIDING PROCESS
S42
PERFORM AREA MERGING PROCESS
S43
PERFORM MERGED AREA PROCESS AND SEPARATED AREA PROCESS
S44
PERFORM NEW AREA PROCESS
S45

Fig. 22

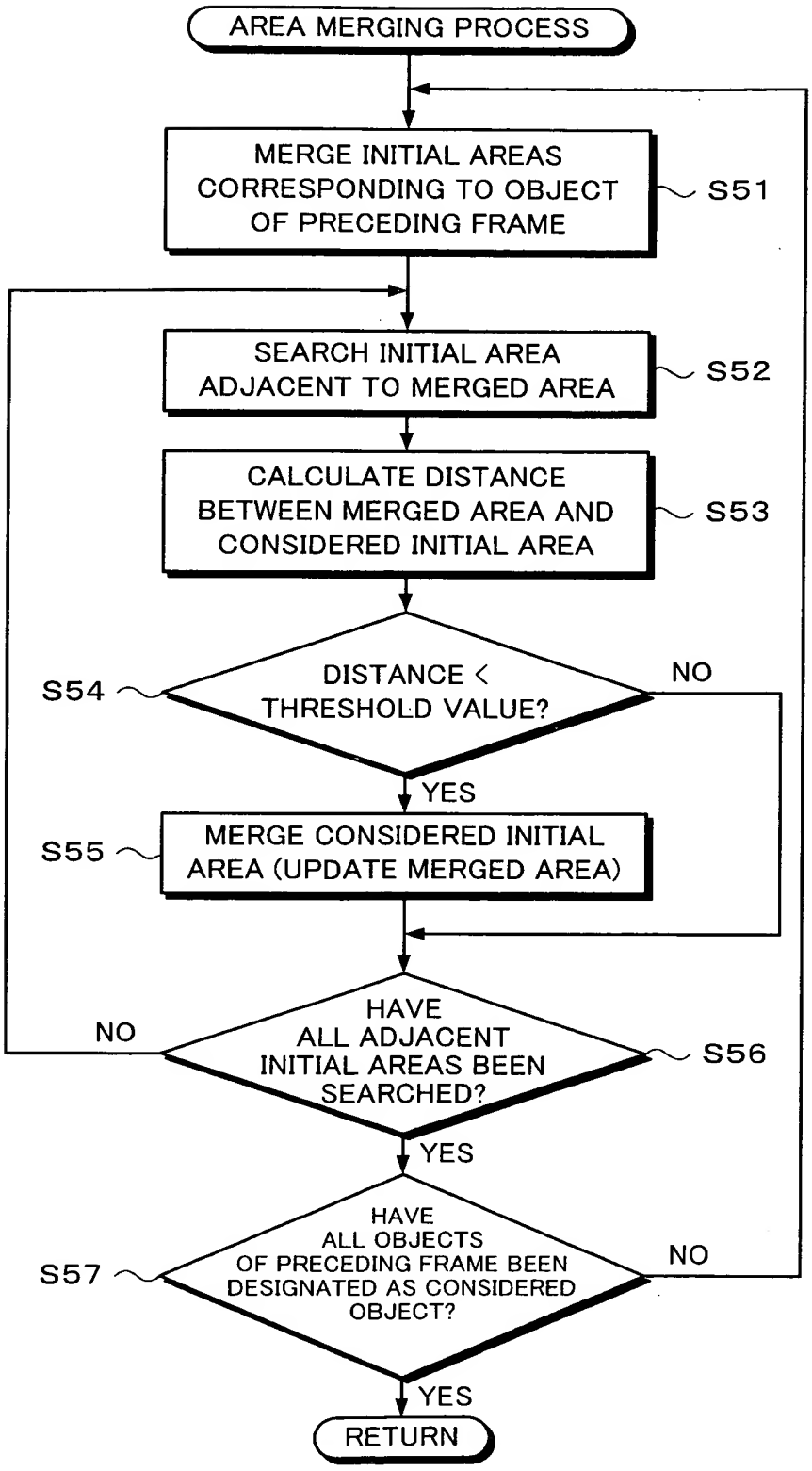
AREA MERGING PROCESS
MERGE INITIAL AREAS CORRESPONDING TO OBJECT OF PRECEDING FRAME
S51
SEARCH INITIAL AREA ADJACENT TO MERGED AREA
S52
CALCULATE DISTANCE BETWEEN MERGED AREA AND CONSIDERED INITIAL AREA
S53
S54
DISTANCE < THRESHOLD VALUE?
NO
YES
S55
MERGE CONSIDERED INITIAL AREA (UPDATE MERGED AREA)
NO
HAVE ALL ADJACENT INITIAL AREAS BEEN SEARCHED?
S56
YES
S57
HAVE ALL OBJECTS OF PRECEDING FRAME BEEN DESIGNATED AS CONSIDERED OBJECT?
NO
YES
RETURN

Fig. 23

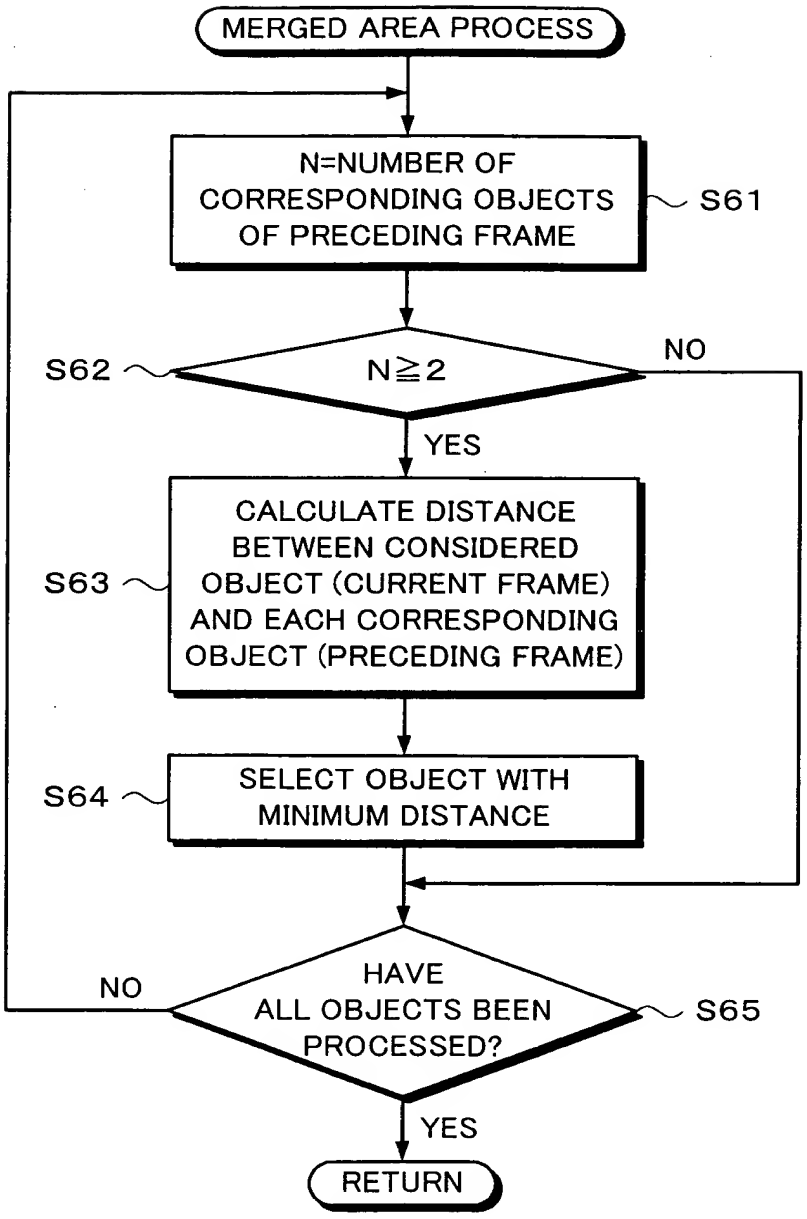
MERGED AREA PROCESS
N=NUMBER OF CORRESPONDING OBJECTS OF PRECEDING FRAME
S61
S62
N≧2
NO
YES
CALCULATE DISTANCE BETWEEN CONSIDERED OBJECT (CURRENT FRAME) AND EACH CORRESPONDING OBJECT (PRECEDING FRAME)
S63
SELECT OBJECT WITH MINIMUM DISTANCE
S64
HAVE ALL OBJECTS BEEN PROCESSED?
S65
NO
YES
RETURN

Fig. 24

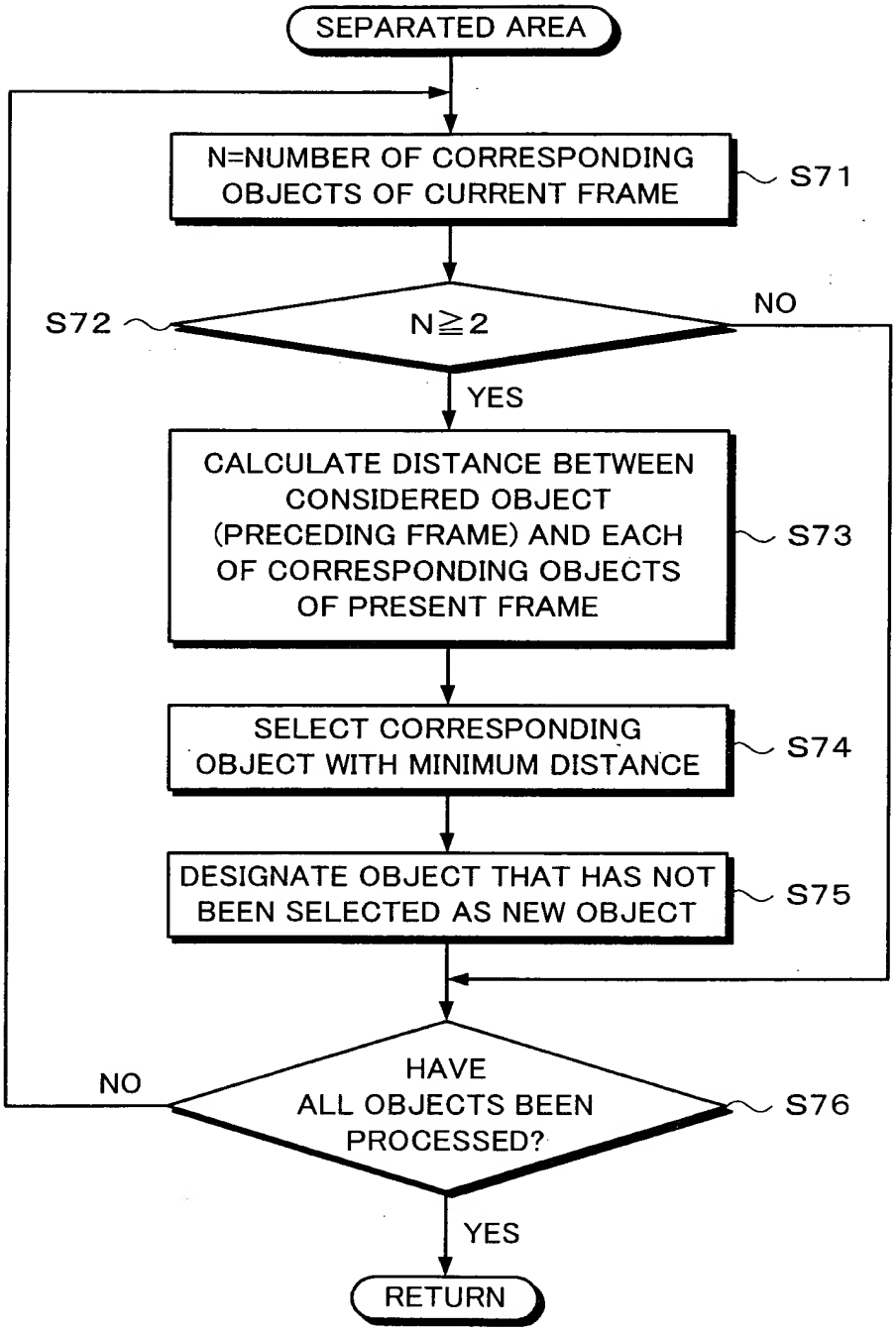
SEPARATED AREA
N=NUMBER OF CORRESPONDING OBJECTS OF CURRENT FRAME
S71
S72
N≧2
NO
YES
CALCULATE DISTANCE BETWEEN CONSIDERED OBJECT (PRECEDING FRAME) AND EACH OF CORRESPONDING OBJECTS OF PRESENT FRAME
S73
SELECT CORRESPONDING OBJECT WITH MINIMUM DISTANCE
S74
DESIGNATE OBJECT THAT HAS NOT BEEN SELECTED AS NEW OBJECT
S75
HAVE ALL OBJECTS BEEN PROCESSED?
S76
NO
YES
RETURN

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Fig. 25

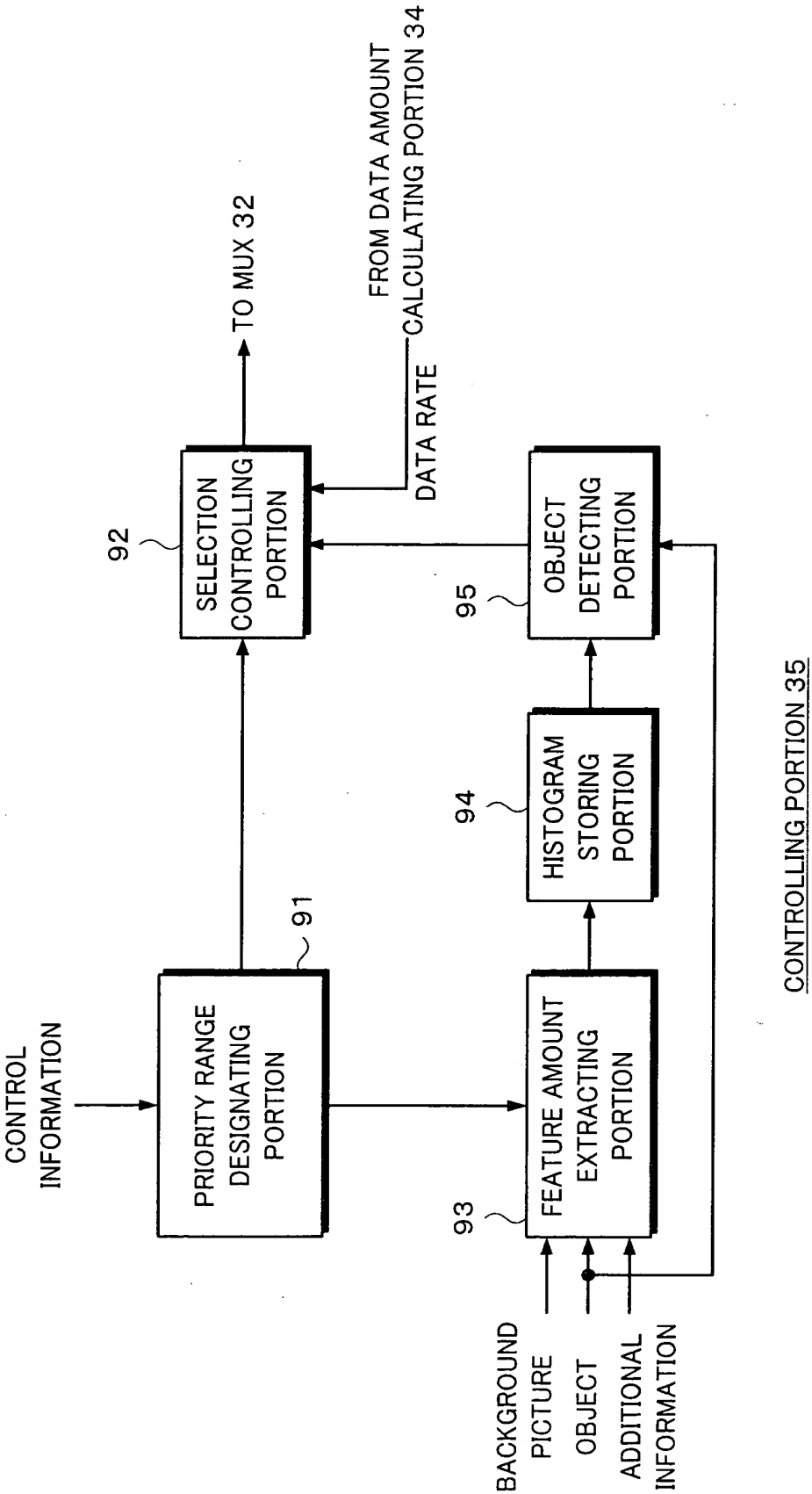

Fig. 26

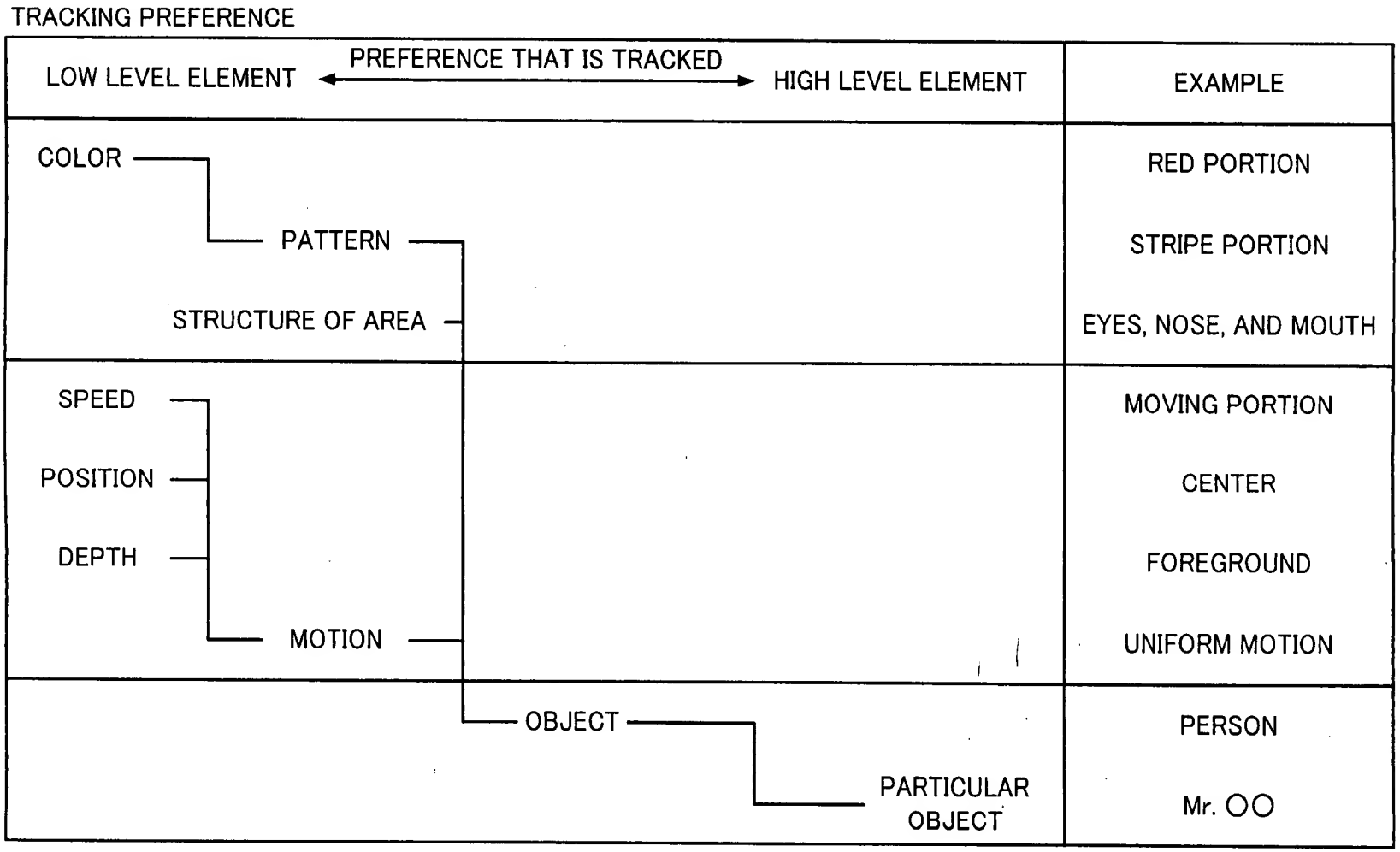
TRACKING PREFERENCE
LOW LEVEL ELEMENT
PREFERENCE THAT IS TRACKED
HIGH LEVEL ELEMENT
EXAMPLE
COLOR
PATTERN
STRUCTURE OF AREA
RED PORTION
STRIPE PORTION
EYES, NOSE, AND MOUTH
SPEED
POSITION
DEPTH
MOTION
MOVING PORTION
CENTER
FOREGROUND
UNIFORM MOTION
OBJECT
PARTICULAR OBJECT
PERSON
Mr. OO

Fig. 27

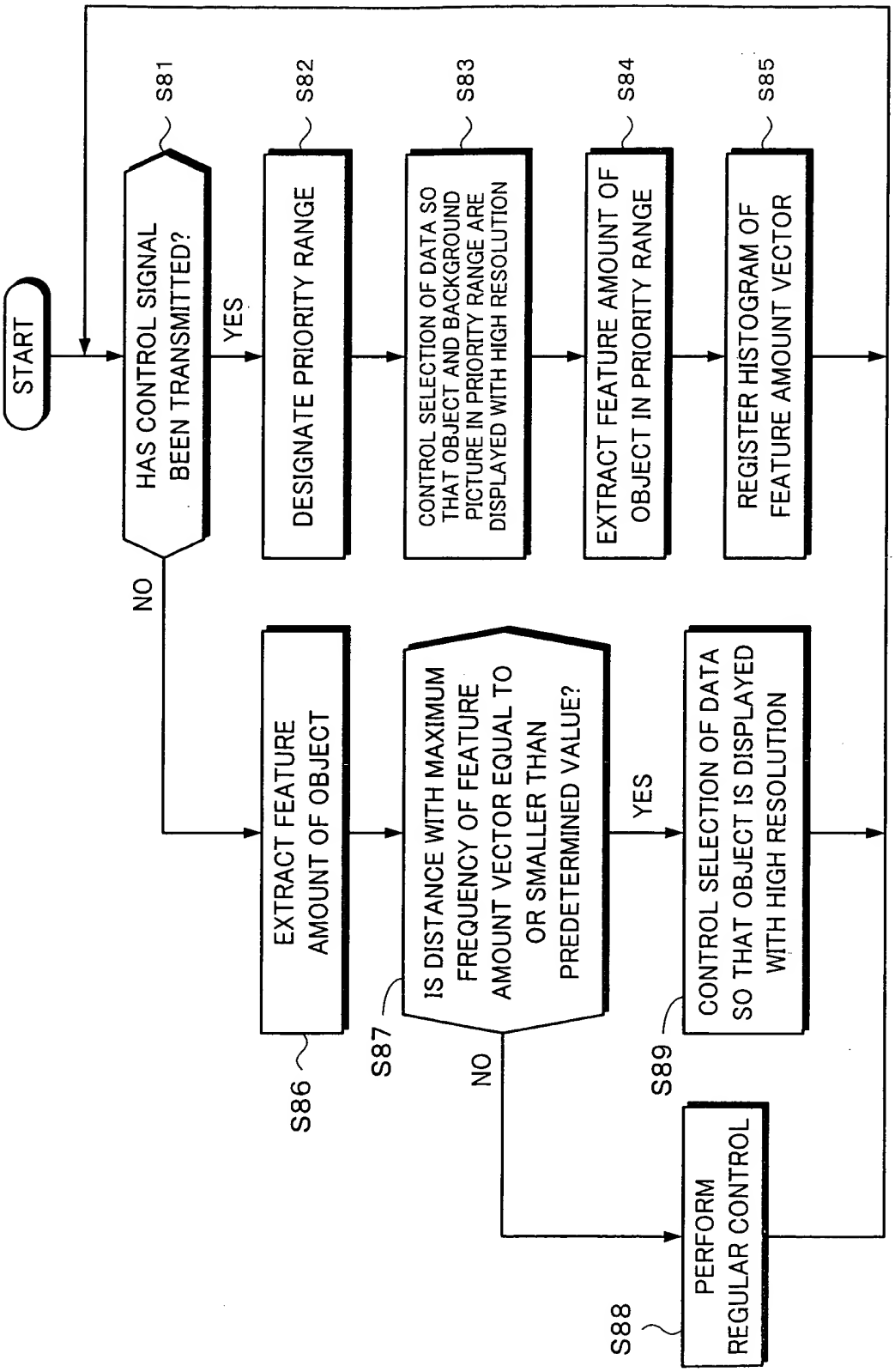
START
HAS CONTROL SIGNAL BEEN TRANSMITTED?
S81
YES
NO
DESIGNATE PRIORITY RANGE
S82
CONTROL SELECTION OF DATA SO THAT OBJECT AND BACKGROUND PICTURE IN PRIORITY RANGE ARE DISPLAYED WITH HIGH RESOLUTION
S83
EXTRACT FEATURE AMOUNT OF OBJECT IN PRIORITY RANGE
S84
REGISTER HISTOGRAM OF FEATURE AMOUNT VECTOR
S85
EXTRACT FEATURE AMOUNT OF OBJECT
S86
IS DISTANCE WITH MAXIMUM FREQUENCY OF FEATURE AMOUNT VECTOR EQUAL TO OR SMALLER THAN PREDETERMINED VALUE?
S87
YES
NO
CONTROL SELECTION OF DATA SO THAT OBJECT IS DISPLAYED WITH HIGH RESOLUTION
S89
PERFORM REGULAR CONTROL
S88

Fig. 28

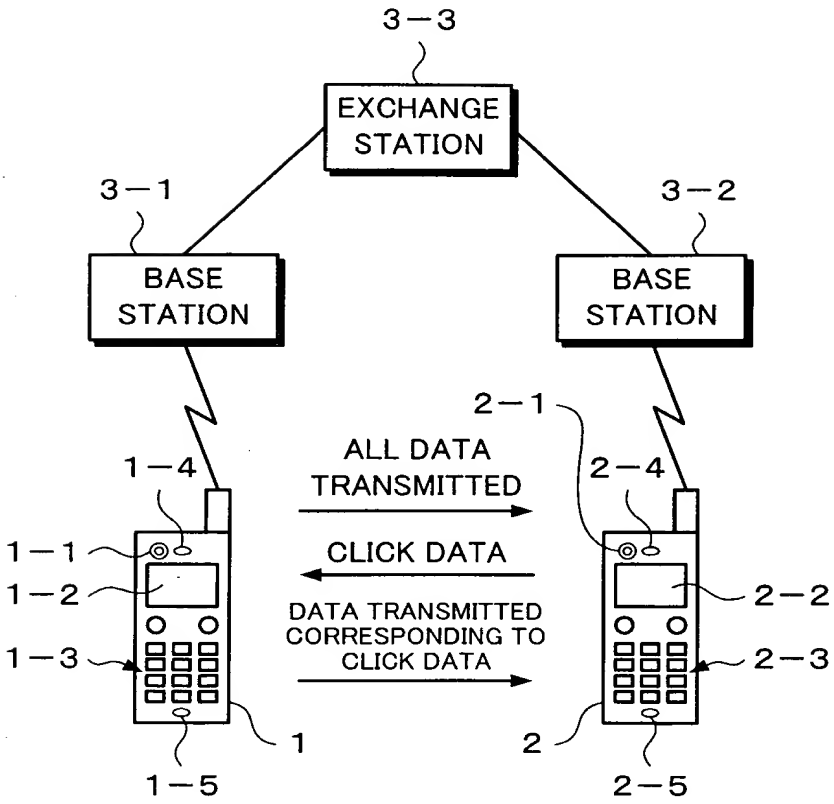
3−3
EXCHANGE STATION
3−1
3−2
BASE STATION
BASE STATION
2−1
1−4
2−4
ALL DATA TRANSMITTED
CLICK DATA
DATA TRANSMITTED CORRESPONDING TO CLICK DATA
1−1
1−2
1−3
2−2
2−3
1
2
1−5
2−5

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Fig. 29

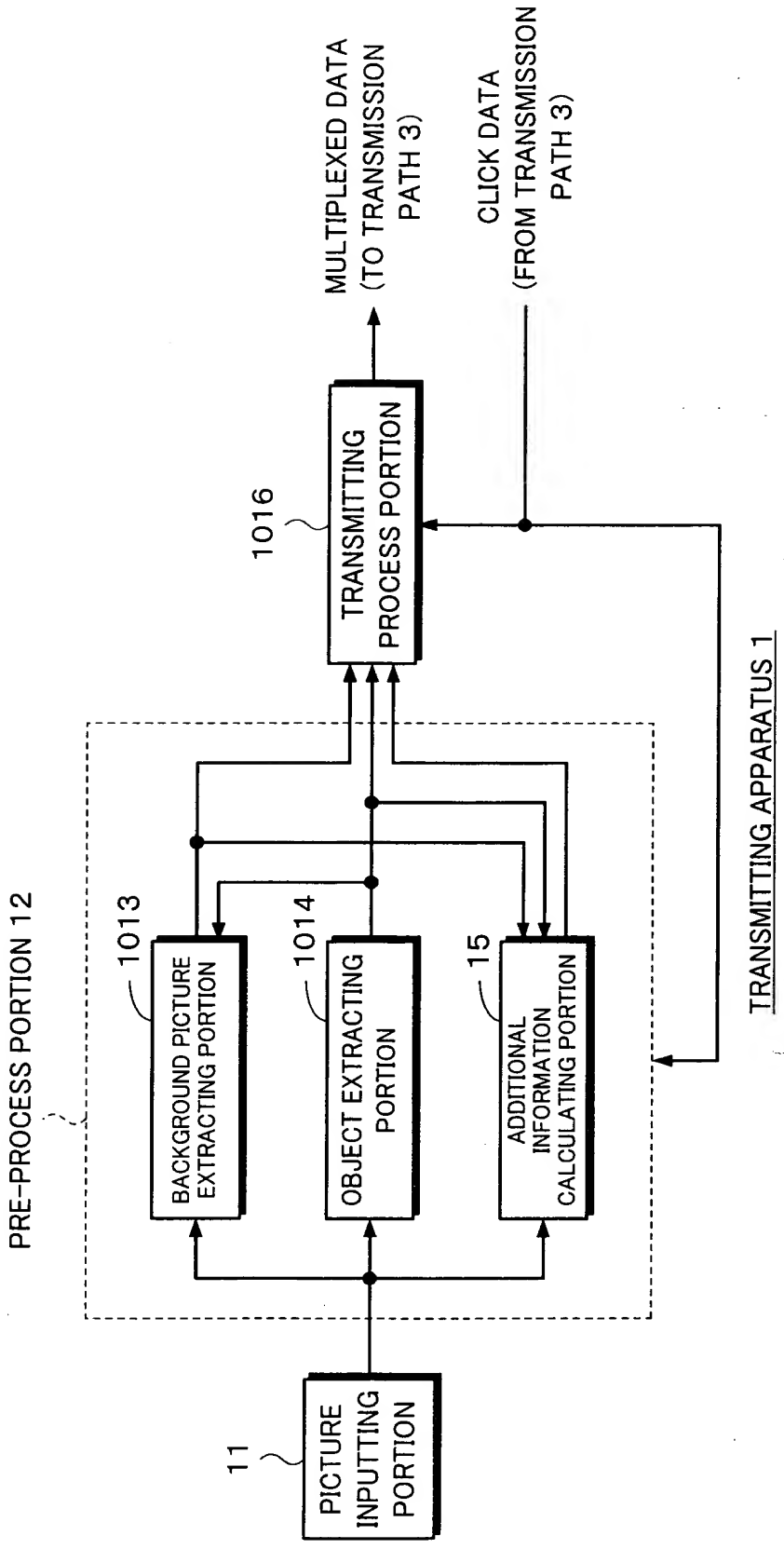

Fig. 30

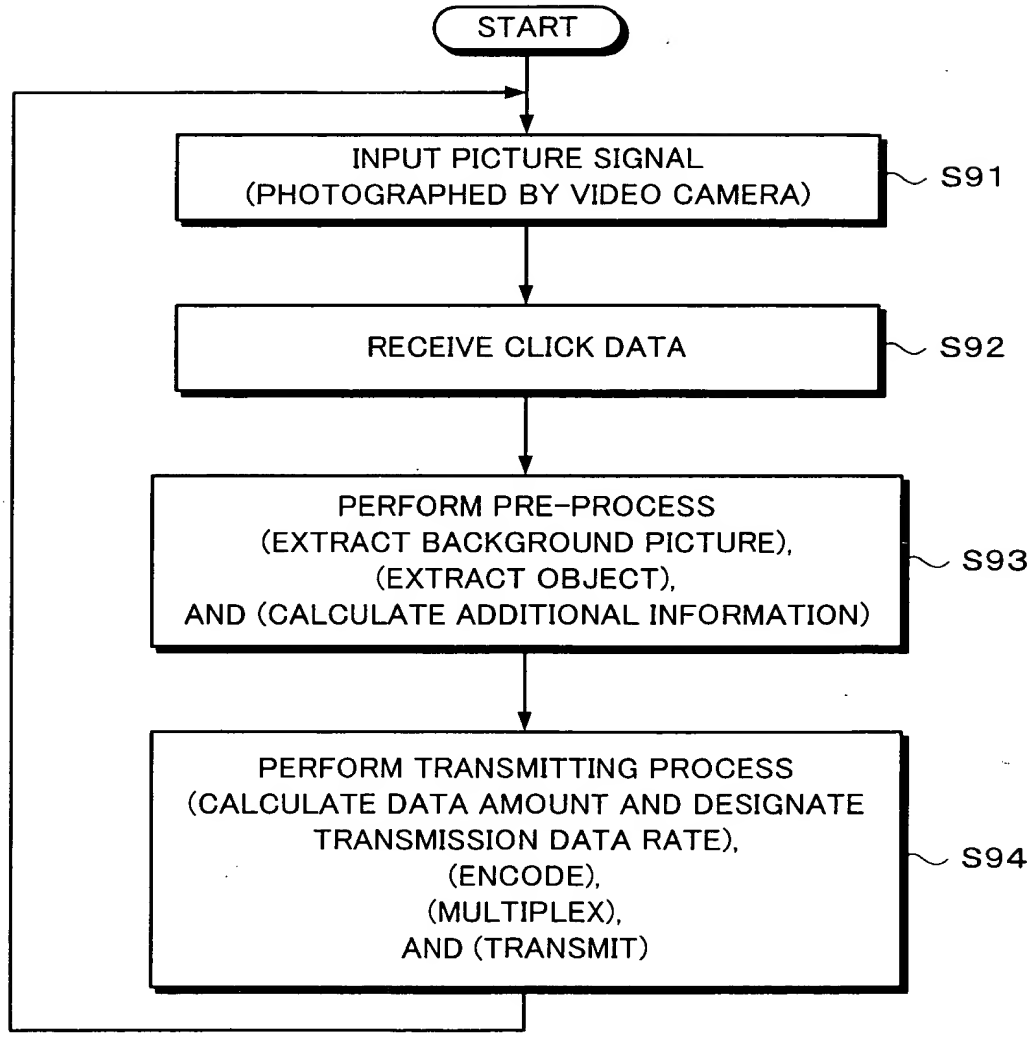

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Fig. 31

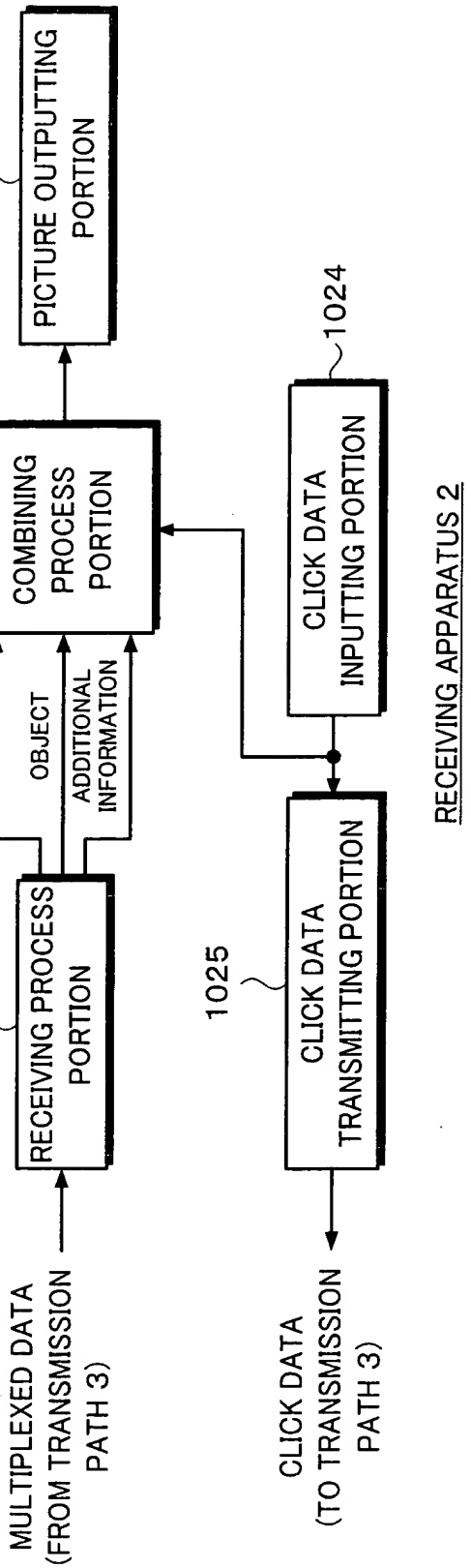

Fig. 32

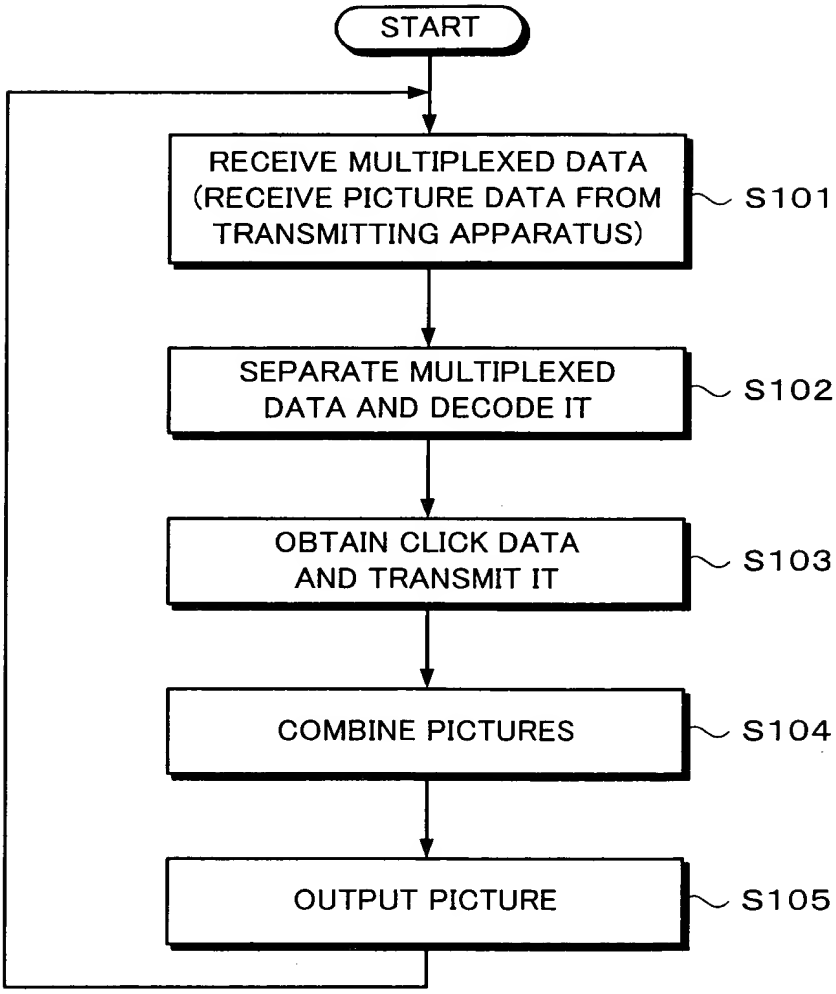

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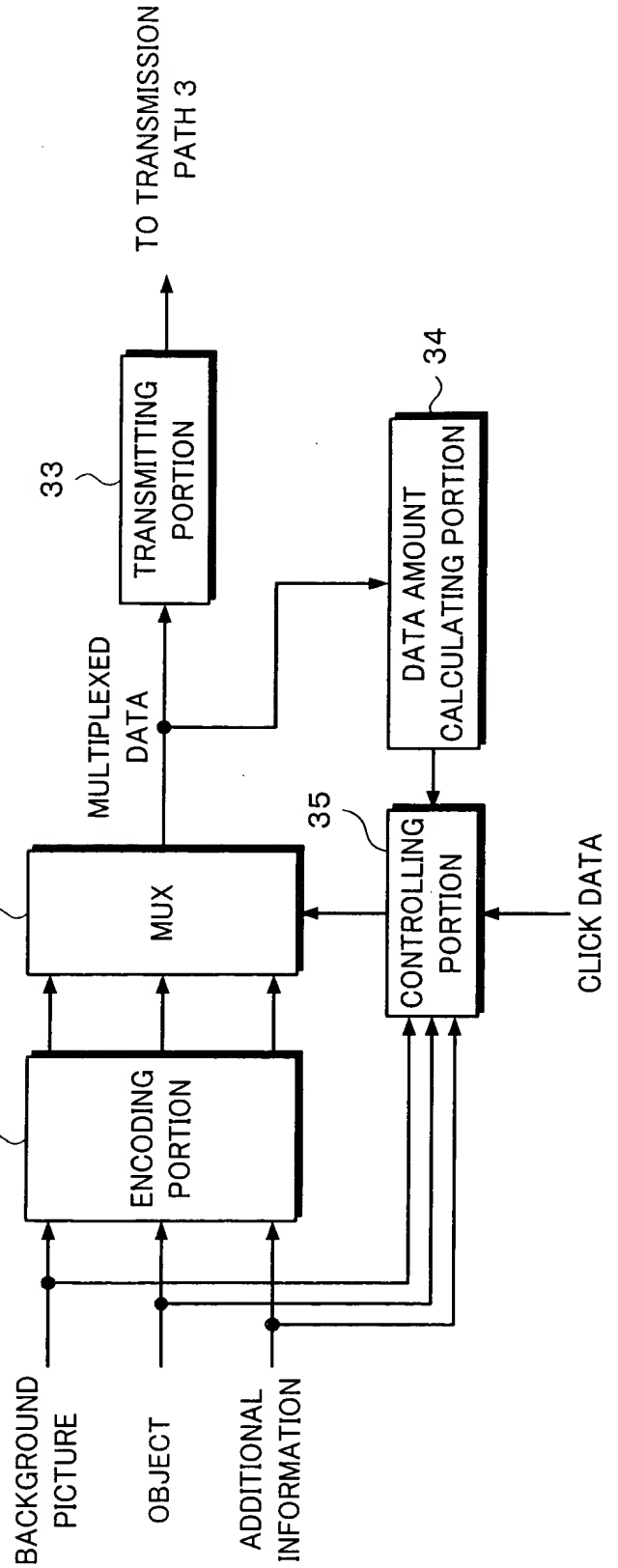
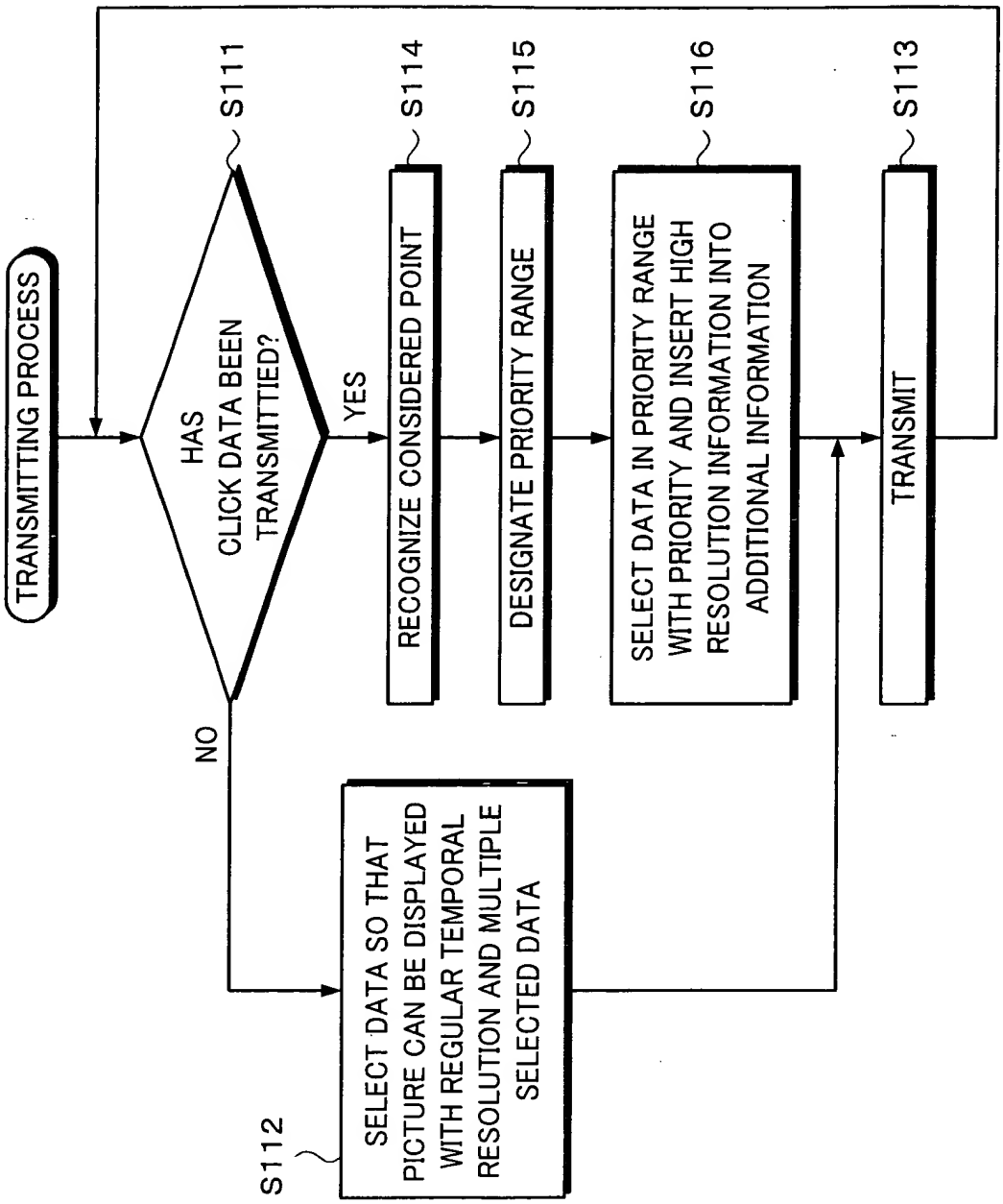
Fig. 33



TRANSMITTING PROCESS PORTION 1016

Fig. 34


TRANSMITTING PROCESS
HAS CLICK DATA BEEN TRANSMITTIED?
S111
YES
NO
RECOGNIZE CONSIDERED POINT
S114
DESIGNATE PRIORITY RANGE
S115
SELECT DATA IN PRIORITY RANGE WITH PRIORITY AND INSERT HIGH RESOLUTION INFORMATION INTO ADDITIONAL INFORMATION
S116
TRANSMIT
S113
SELECT DATA SO THAT PICTURE CAN BE DISPLAYED WITH REGULAR TEMPORAL RESOLUTION AND MULTIPLE SELECTED DATA
S112

JP05150760

Fig. 35

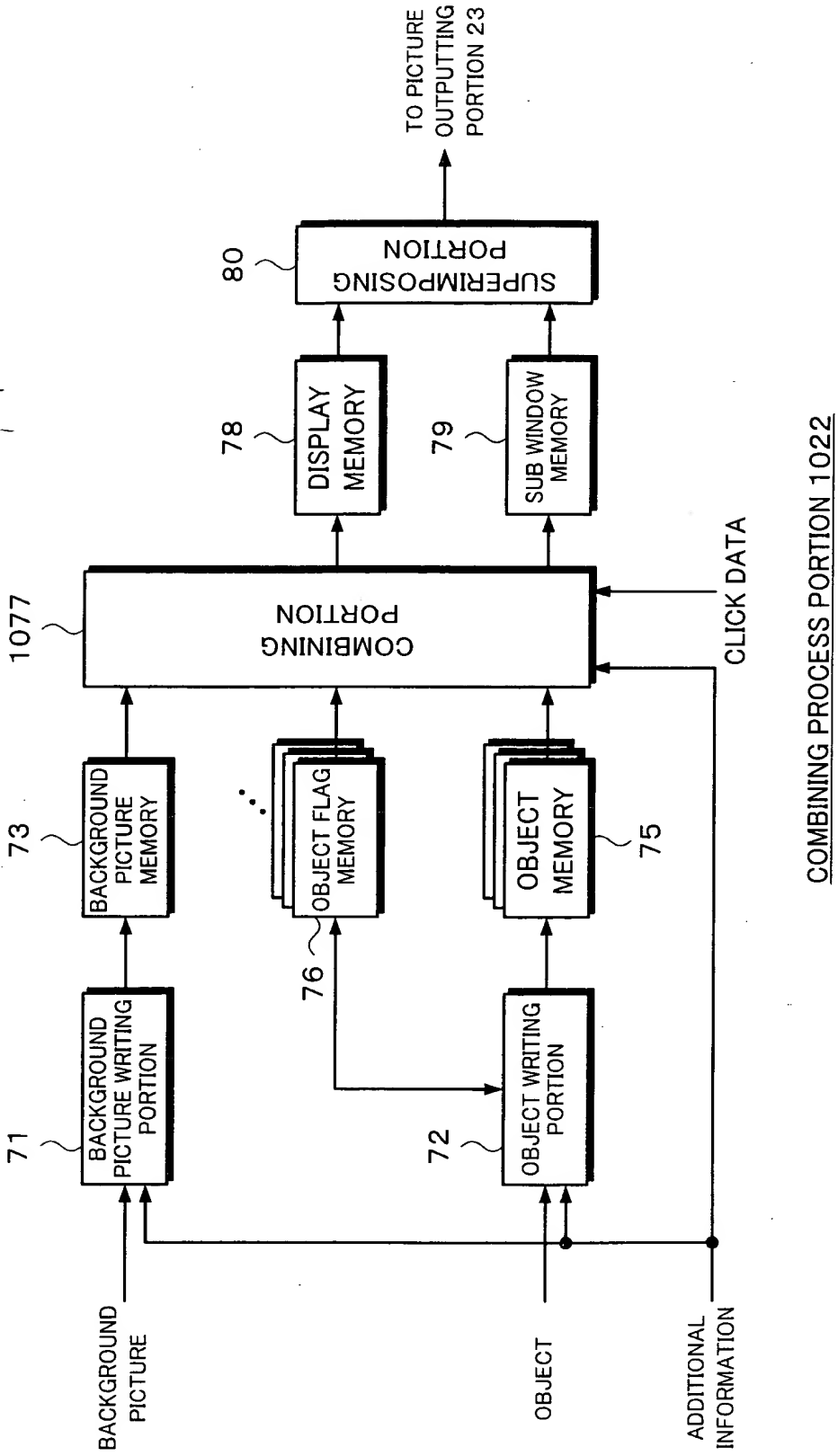


Fig. 36

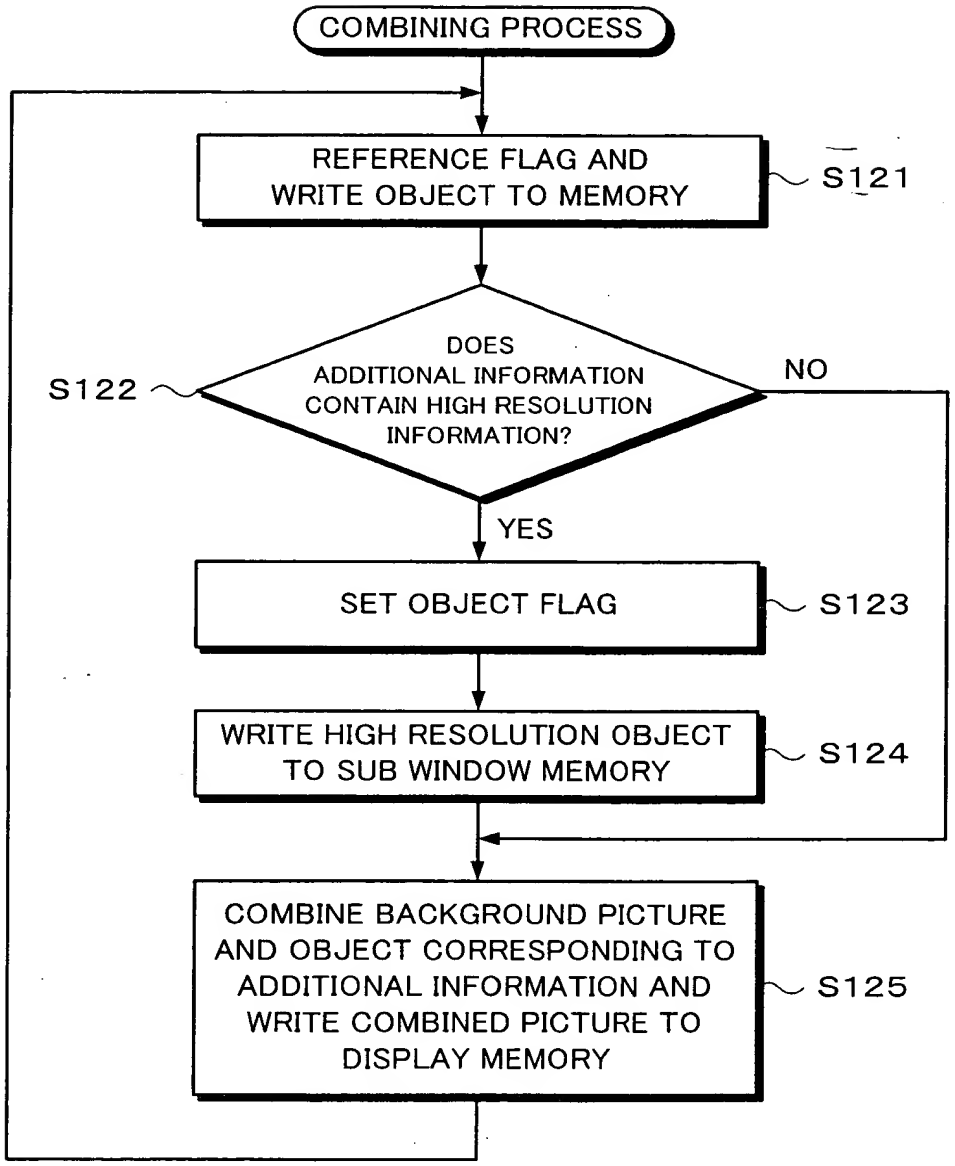

COMBINING PROCESS
REFERENCE FLAG AND WRITE OBJECT TO MEMORY
S121
DOES ADDITIONAL INFORMATION CONTAIN HIGH RESOLUTION INFORMATION?
S122
NO
YES
SET OBJECT FLAG
S123
WRITE HIGH RESOLUTION OBJECT TO SUB WINDOW MEMORY
S124
COMBINE BACKGROUND PICTURE AND OBJECT CORRESPONDING TO ADDITIONAL INFORMATION AND WRITE COMBINED PICTURE TO DISPLAY MEMORY
S125

Fig. 37

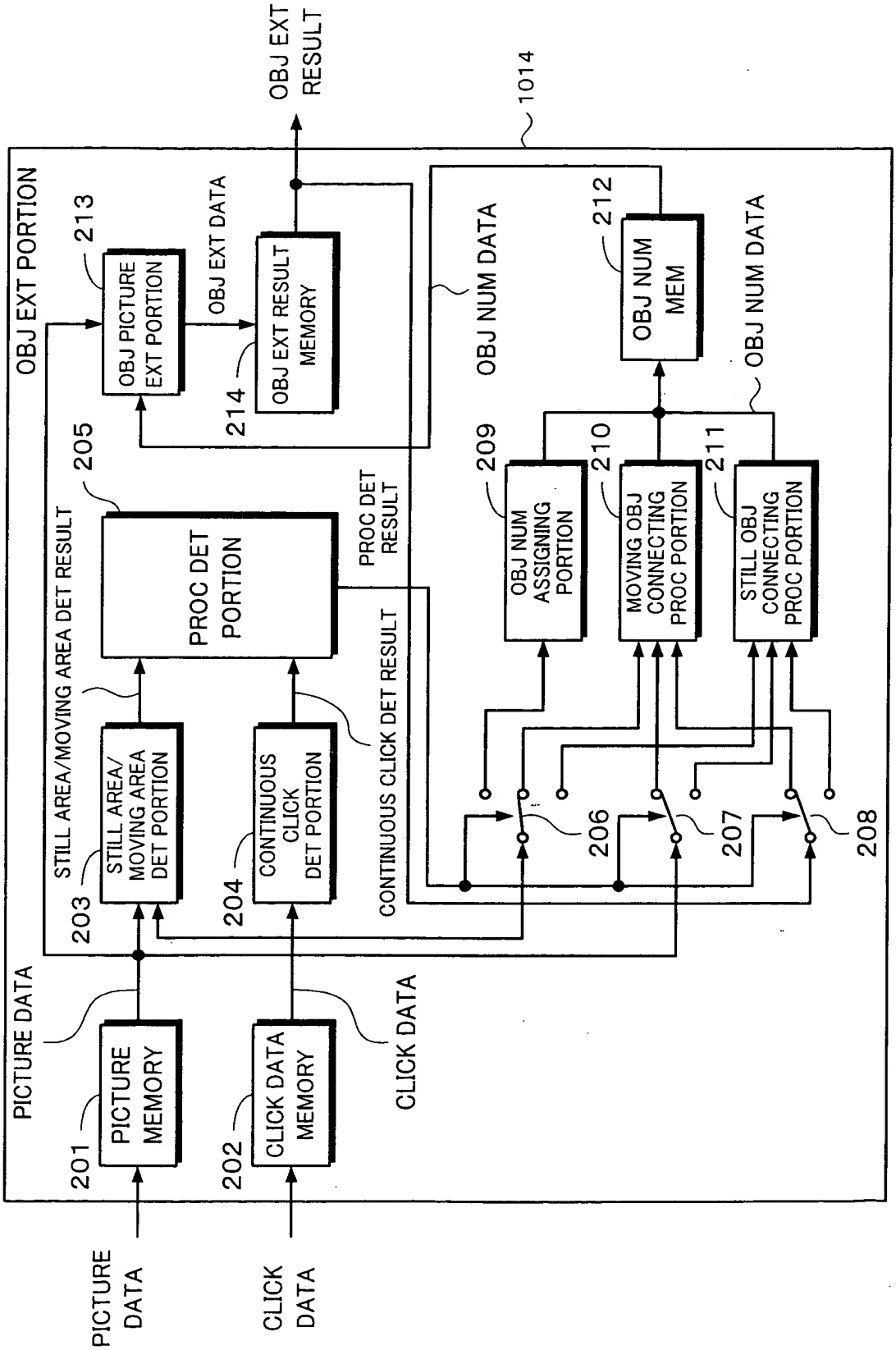
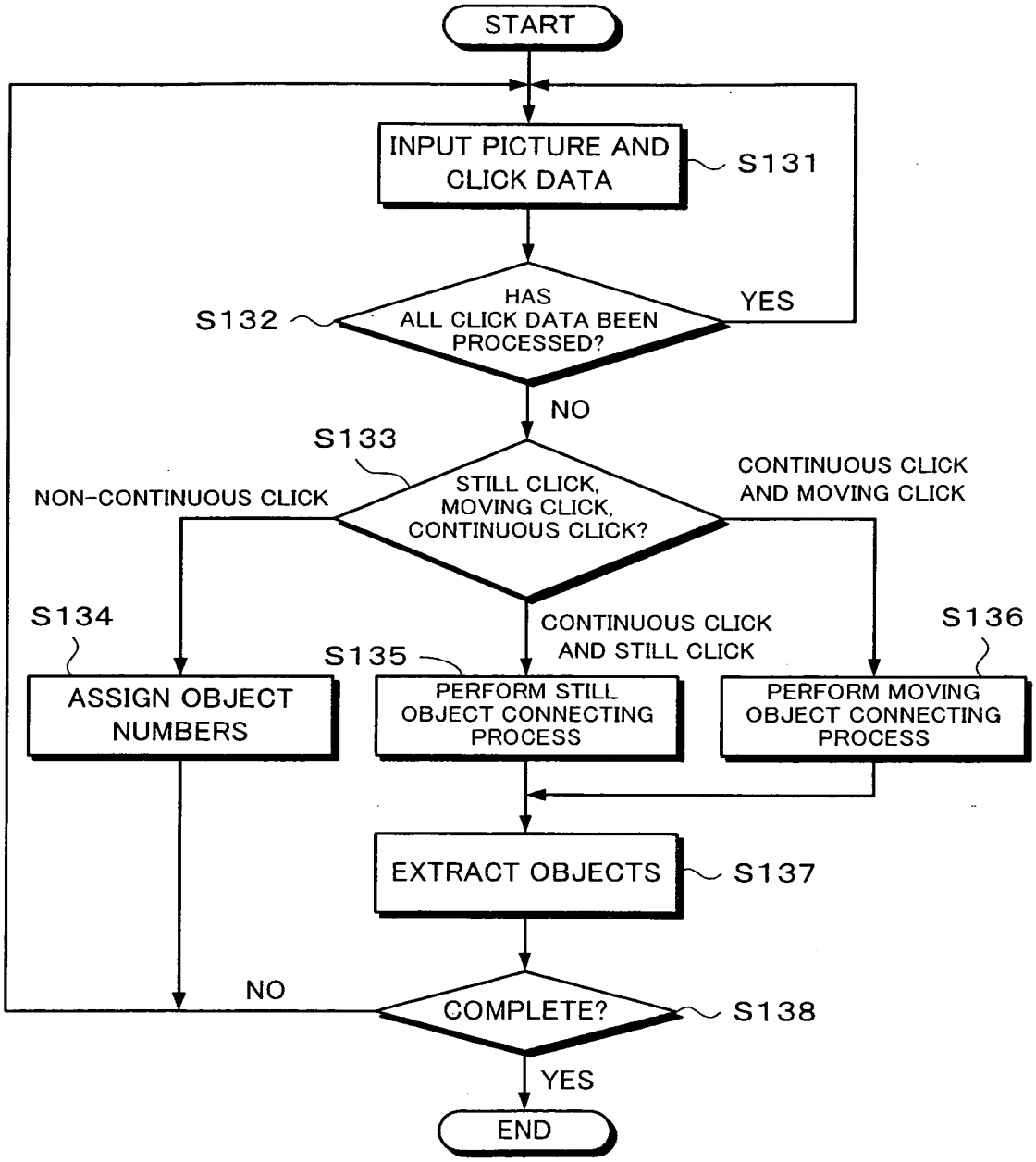

PICTURE DATA
CLICK DATA
PICTURE MEMORY
201
CLICK DATA MEMORY
202
PICTURE DATA
CLICK DATA
OBJ EXT PORTION
1014
OBJ EXT RESULT
OBJ PICTURE EXT PORTION
213
OBJ EXT DATA
OBJ EXT RESULT MEMORY
214
OBJ NUM DATA
OBJ NUM MEM
212
OBJ NUM DATA
STILL AREA/MOVING AREA DET RESULT
205
PROC DET PORTION
PROC DET RESULT
STILL AREA/ MOVING AREA DET PORTION
203
CONTINUOUS CLICK DET PORTION
204
CONTINUOUS CLICK DET RESULT
OBJ NUM ASSIGNING PORTION
209
MOVING OBJ CONNECTING PROC PORTION
210
STILL OBJ CONNECTING PROC PORTION
211
206
207
208

Fig. 38


START
INPUT PICTURE AND CLICK DATA
S131
HAS ALL CLICK DATA BEEN PROCESSED?
S132
YES
NO
S133
STILL CLICK, MOVING CLICK, CONTINUOUS CLICK?
NON-CONTINUOUS CLICK
CONTINUOUS CLICK AND MOVING CLICK
CONTINUOUS CLICK AND STILL CLICK
S134
S135
S136
ASSIGN OBJECT NUMBERS
PERFORM STILL OBJECT CONNECTING PROCESS
PERFORM MOVING OBJECT CONNECTING PROCESS
EXTRACT OBJECTS
S137
NO
COMPLETE?
S138
YES
END

EDITED - FILED

Fig. 39

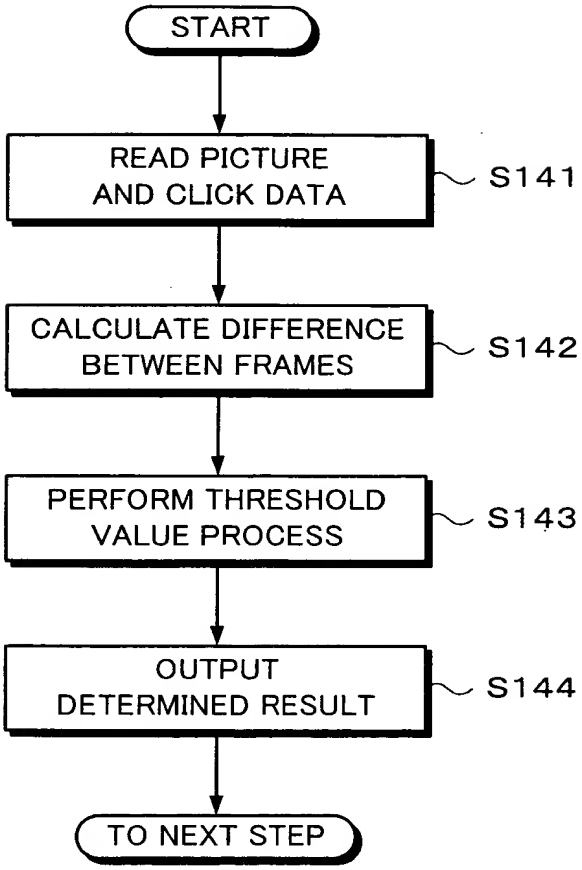


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Fig. 40A

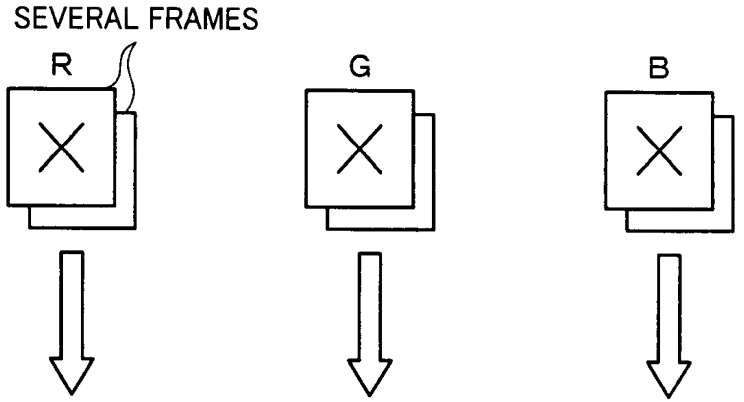


Fig. 40B

AVERAGE VALUE OF ABSOLUTE VALUES OF DIFFERENCES IN BLOCK

Fig. 40C

AVERAGE VALUE OF ABSOLUTE VALUES OF DIFFERENCES OF R

AVERAGE VALUE OF ABSOLUTE VALUES OF DIFFERENCES OF G

AVERAGE VALUE OF ABSOLUTE VALUES OF DIFFERENCES OF B

Fig. 40D

THRESHOLD VALUE PROCESS :
WHEN LARGER THAN THRESHOLD VALUE : 1
WHEN EQUAL TO OR SMALLER THAN THRESHOLD VALUE : 0

Fig. 40E

DETERMINATION
WHEN ALL AVERAGE VALUES ARE 0 : STILL
OTHERWISE : MOVING

EXAMPLE 0 1 0

MOVING

Fig. 41

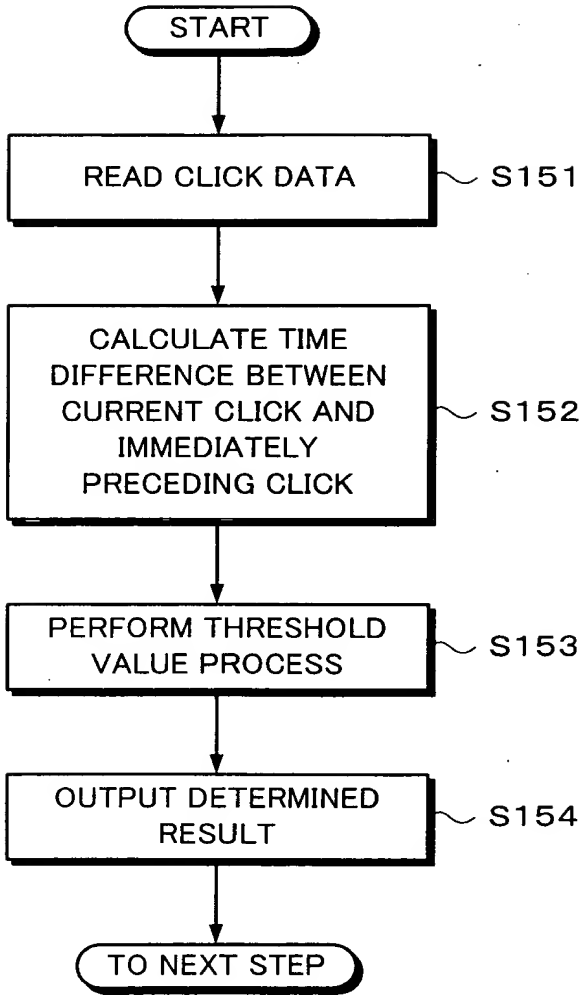

START
READ CLICK DATA
S151
CALCULATE TIME DIFFERENCE BETWEEN CURRENT CLICK AND IMMEDIATELY PRECEDING CLICK
S152
PERFORM THRESHOLD VALUE PROCESS
S153
OUTPUT DETERMINED RESULT
S154
TO NEXT STEP

Fig. 42A Fig. 42C Fig. 42E

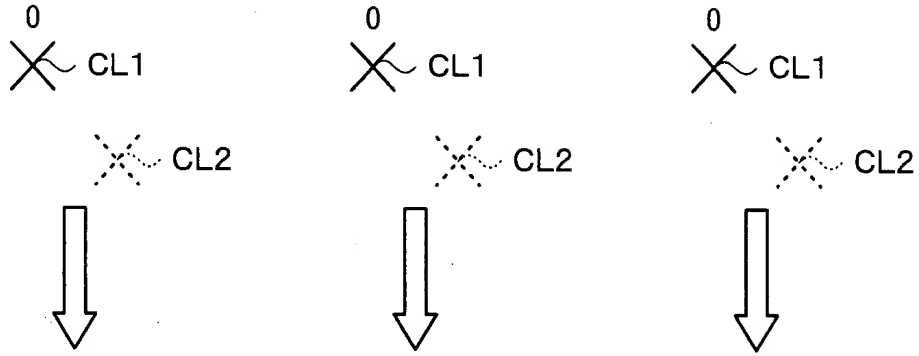
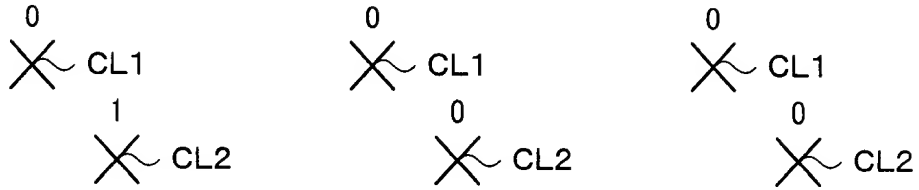


Fig. 42B Fig. 42D Fig. 42F



IN THE CASE THAT NEW OBJECT NUMBER IS ASSIGNED

IN THE CASE THAT STILL OBJECTS ARE CONNECTED

IN THE CASE THAT MOVING OBJECTS ARE CONNECTED

Fig. 43

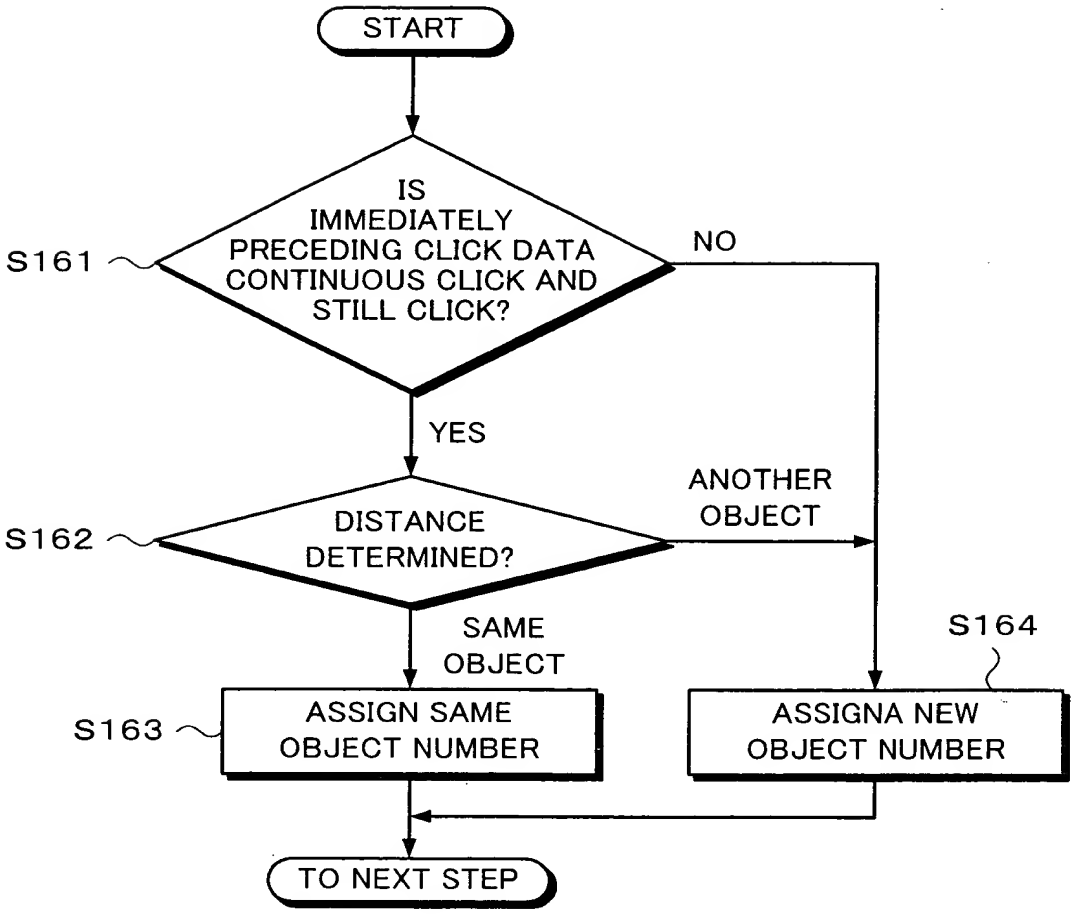

START
IS IMMEDIATELY PRECEDING CLICK DATA CONTINUOUS CLICK AND STILL CLICK?
S161
NO
YES
DISTANCE DETERMINED?
S162
ANOTHER OBJECT
SAME OBJECT
S164
ASSIGN SAME OBJECT NUMBER
S163
ASSIGNA NEW OBJECT NUMBER
TO NEXT STEP

Fig. 44

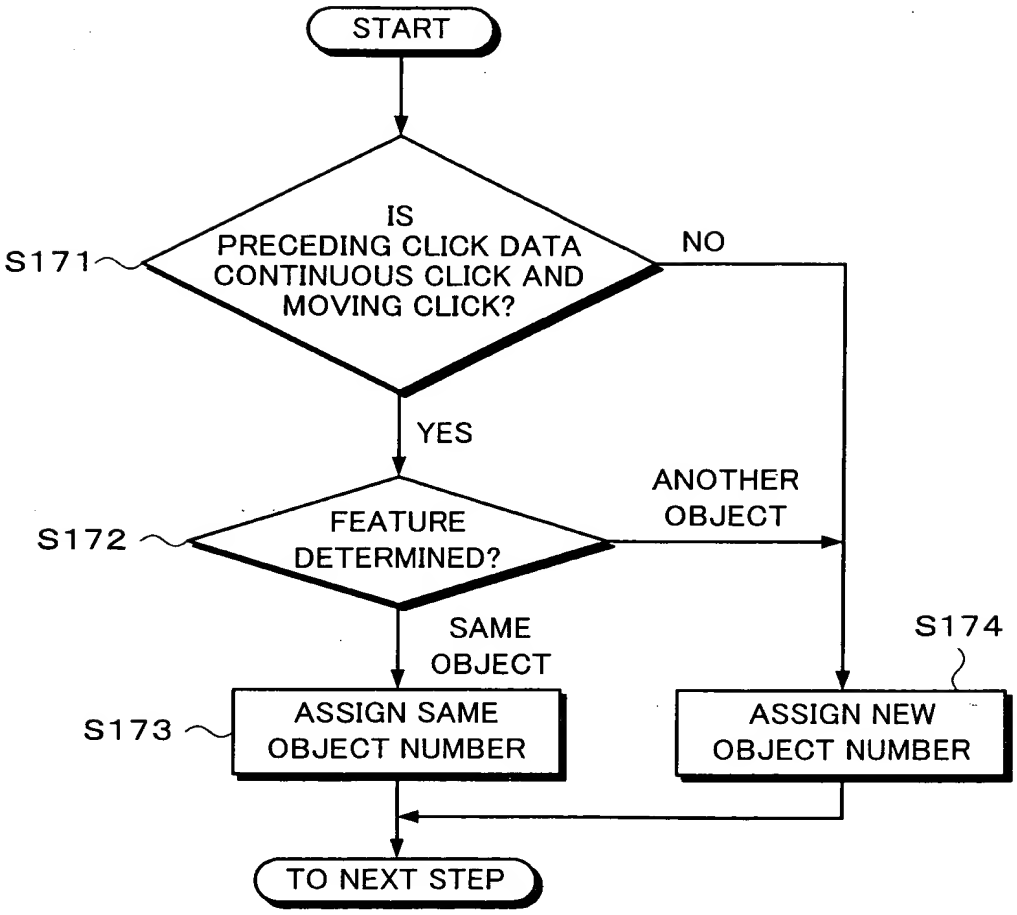

START
S171
IS PRECEDING CLICK DATA CONTINUOUS CLICK AND MOVING CLICK?
NO
YES
S172
FEATURE DETERMINED?
ANOTHER OBJECT
SAME OBJECT
S174
S173
ASSIGN SAME OBJECT NUMBER
ASSIGN NEW OBJECT NUMBER
TO NEXT STEP

Fig. 45

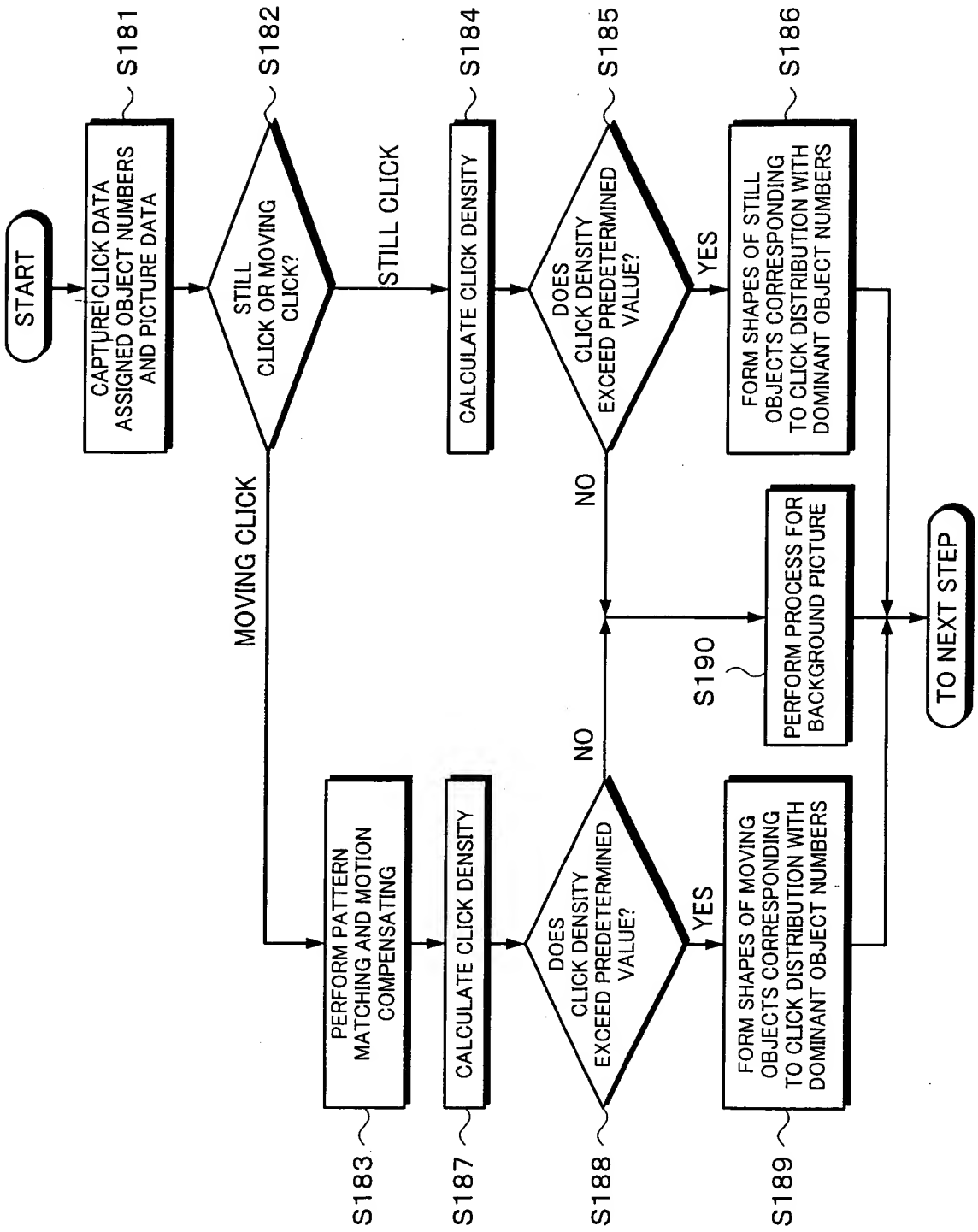

START
CAPTURE CLICK DATA ASSIGNED OBJECT NUMBERS AND PICTURE DATA
S181
STILL CLICK OR MOVING CLICK?
S182
STILL CLICK
MOVING CLICK
CALCULATE CLICK DENSITY
S184
DOES CLICK DENSITY EXCEED PREDETERMINED VALUE?
S185
YES
NO
FORM SHAPES OF STILL OBJECTS CORRESPONDING TO CLICK DISTRIBUTION WITH DOMINANT OBJECT NUMBERS
S186
PERFORM PATTERN MATCHING AND MOTION COMPENSATING
S183
CALCULATE CLICK DENSITY
S187
DOES CLICK DENSITY EXCEED PREDETERMINED VALUE?
S188
YES
NO
FORM SHAPES OF MOVING OBJECTS CORRESPONDING TO CLICK DISTRIBUTION WITH DOMINANT OBJECT NUMBERS
S189
PERFORM PROCESS FOR BACKGROUND PICTURE
S190
TO NEXT STEP

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Fig. 46A

DISTRIBUTION OF STILL CLICKS

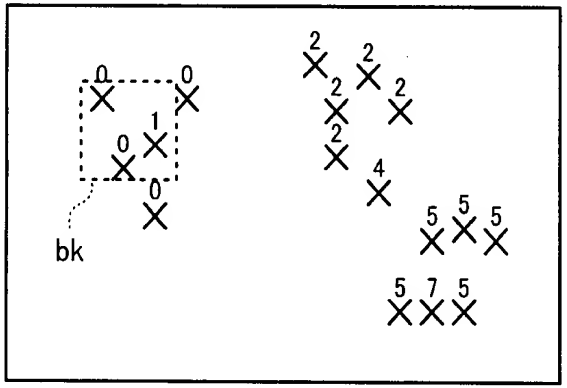


Fig. 46C

DISTRIBUTION OF MOVING CLICKS
(AFTER MOTION COMPENSATED)

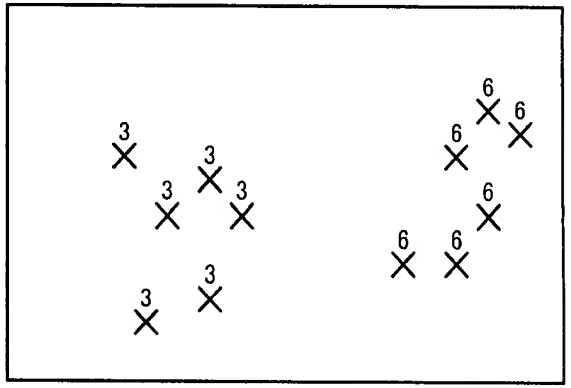
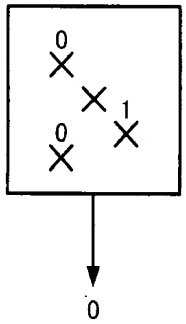


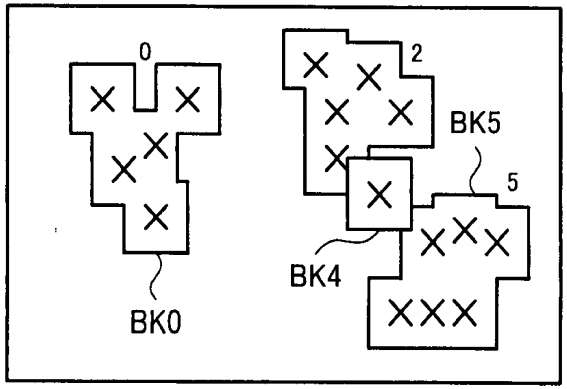
Fig. 46E



OBJECT NUMBER WITH HIGHEST FREQUENCY IN BLOCK

Fig. 46B

EXTRACTED RESULT (STILL)



CALCULATION FOR ALL PIXELS

Fig. 46D

EXTRACTED RESULT (MOVING)

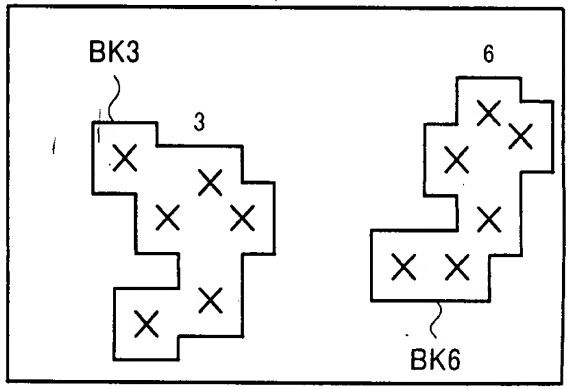


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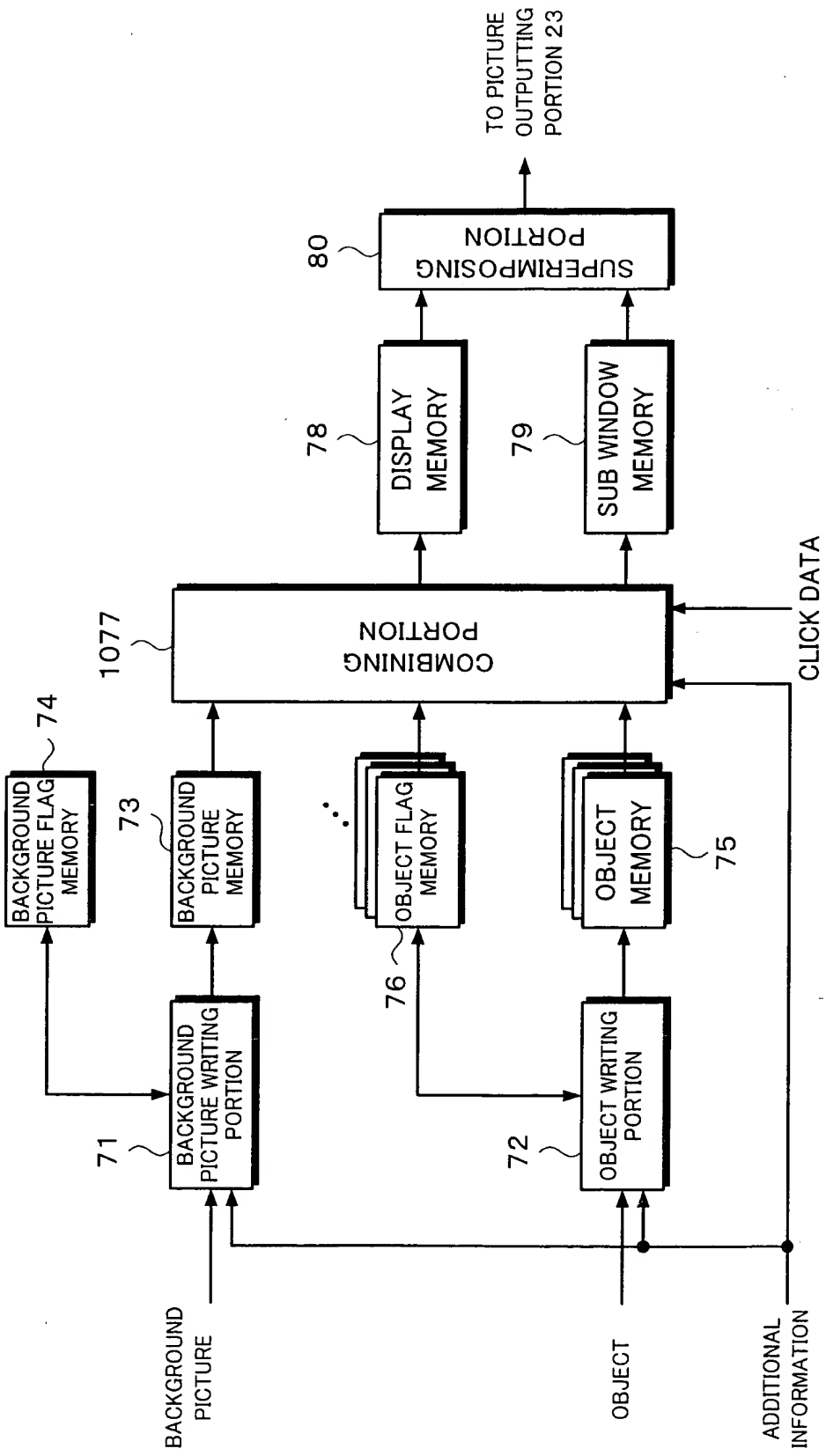
Fig. 47



EP1750460

Fig. 48

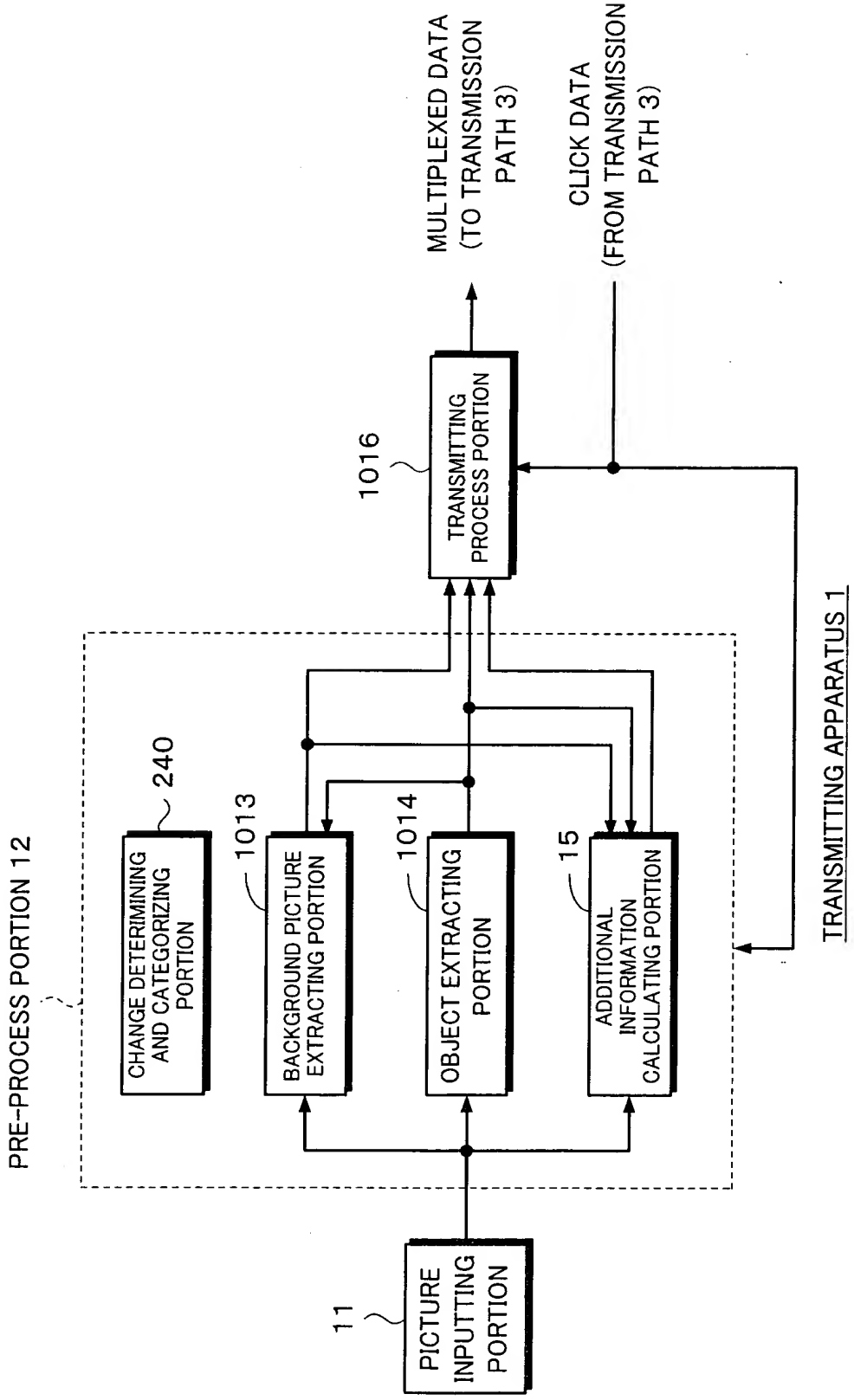


Fig. 49

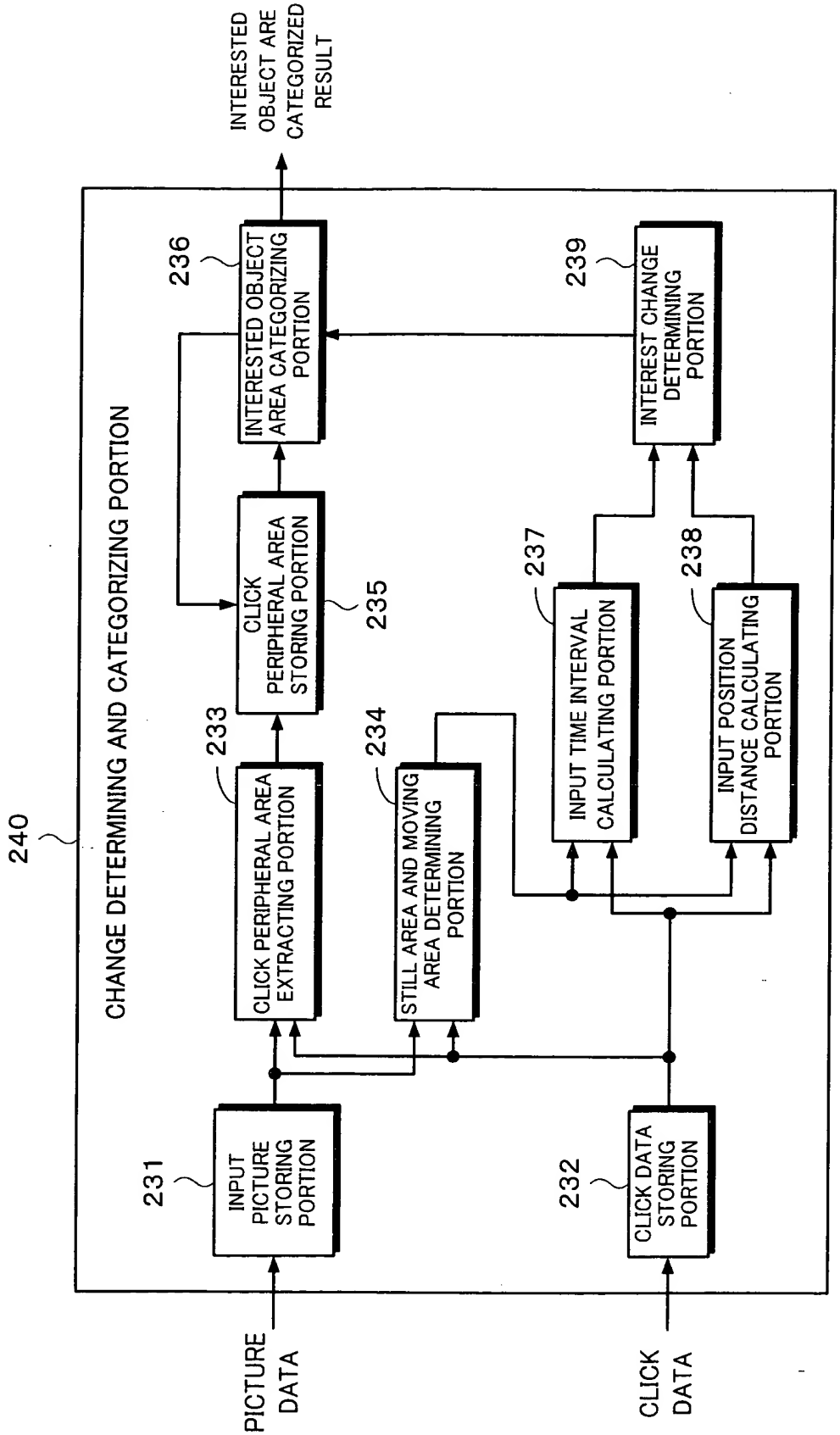

INTERESTED OBJECT ARE CATEGORIZED RESULT
CHANGE DETERMINING AND CATEGORIZING PORTION
240
INTERESTED OBJECT AREA CATEGORIZING PORTION
236
INTEREST CHANGE DETERMINING PORTION
239
CLICK PERIPHERAL AREA STORING PORTION
235
INPUT TIME INTERVAL CALCULATING PORTION
237
INPUT POSITION DISTANCE CALCULATING PORTION
238
CLICK PERIPHERAL AREA EXTRACTING PORTION
233
STILL AREA AND MOVING AREA DETERMINING PORTION
234
INPUT PICTURE STORING PORTION
231
CLICK DATA STORING PORTION
232
PICTURE DATA
CLICK DATA

Fig. 50A

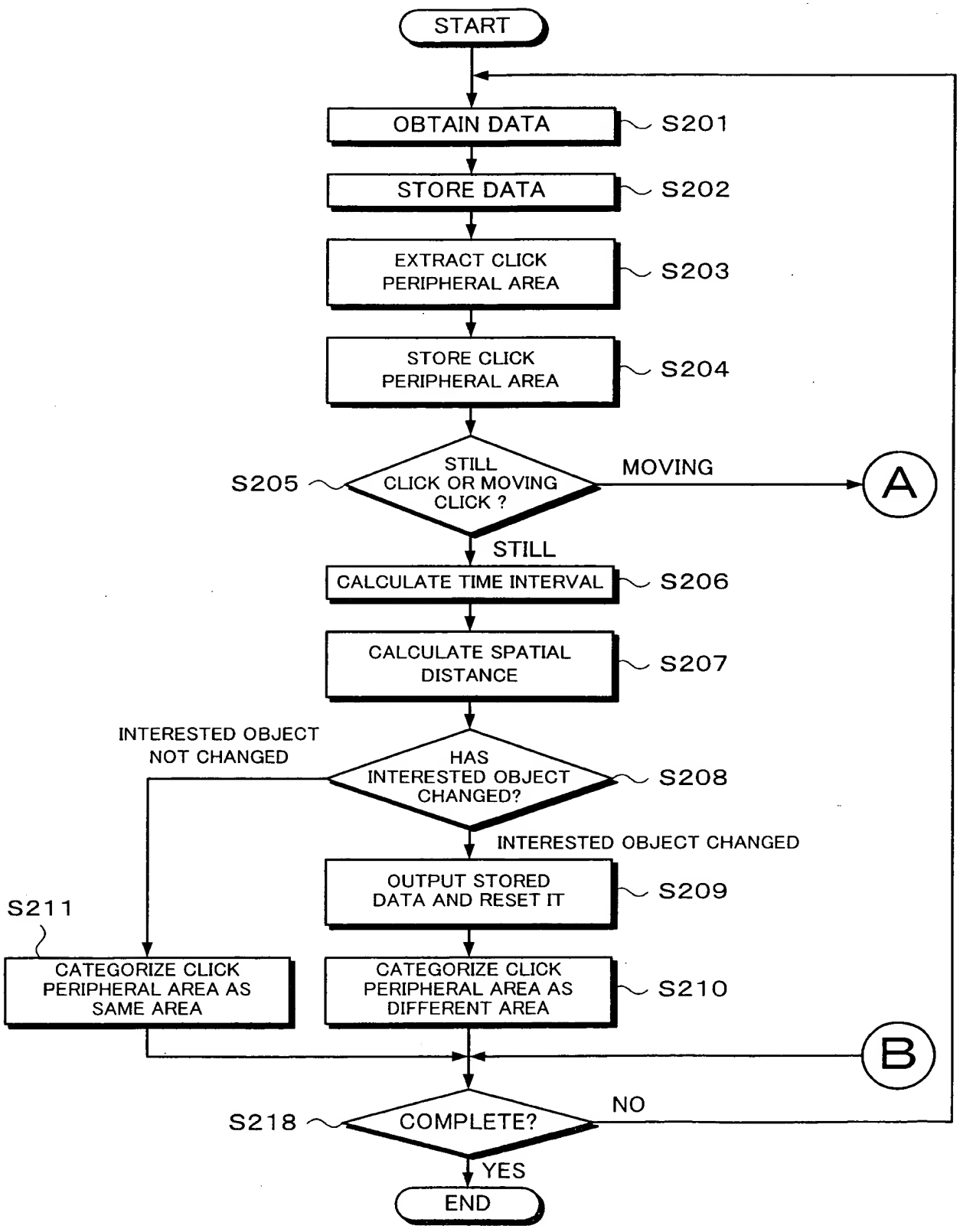

START
OBTAIN DATA
S201
STORE DATA
S202
EXTRACT CLICK PERIPHERAL AREA
S203
STORE CLICK PERIPHERAL AREA
S204
S205
STILL CLICK OR MOVING CLICK ?
MOVING
A
STILL
CALCULATE TIME INTERVAL
S206
CALCULATE SPATIAL DISTANCE
S207
INTERESTED OBJECT NOT CHANGED
HAS INTERESTED OBJECT CHANGED?
S208
INTERESTED OBJECT CHANGED
OUTPUT STORED DATA AND RESET IT
S209
S211
CATEGORIZE CLICK PERIPHERAL AREA AS SAME AREA
CATEGORIZE CLICK PERIPHERAL AREA AS DIFFERENT AREA
S210
B
S218
COMPLETE?
NO
YES
END

Fig. 50B

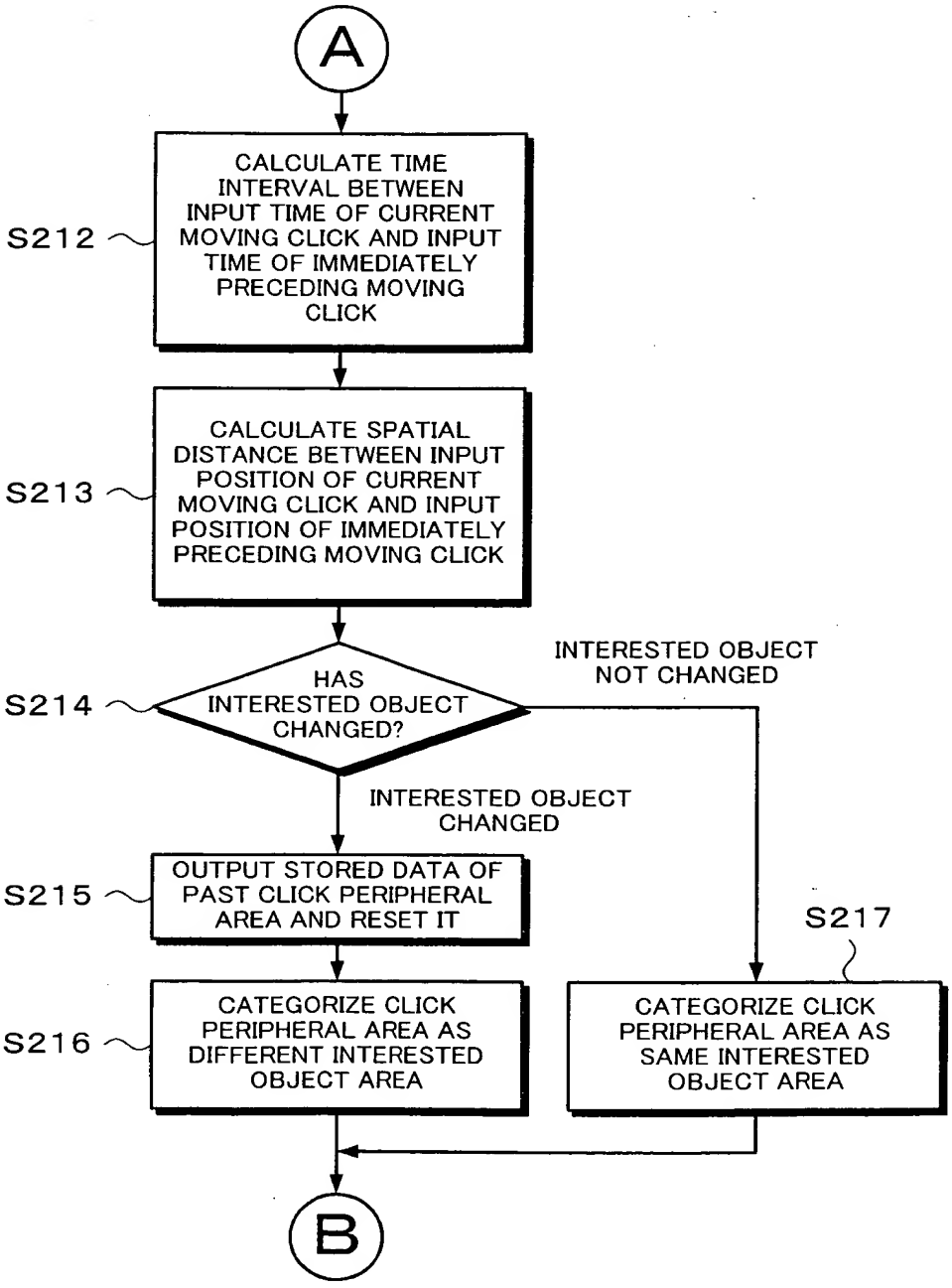

A
S212
CALCULATE TIME INTERVAL BETWEEN INPUT TIME OF CURRENT MOVING CLICK AND INPUT TIME OF IMMEDIATELY PRECEDING MOVING CLICK
S213
CALCULATE SPATIAL DISTANCE BETWEEN INPUT POSITION OF CURRENT MOVING CLICK AND INPUT POSITION OF IMMEDIATELY PRECEDING MOVING CLICK
S214
HAS INTERESTED OBJECT CHANGED?
INTERESTED OBJECT NOT CHANGED
INTERESTED OBJECT CHANGED
S215
OUTPUT STORED DATA OF PAST CLICK PERIPHERAL AREA AND RESET IT
S216
CATEGORIZE CLICK PERIPHERAL AREA AS DIFFERENT INTERESTED OBJECT AREA
S217
CATEGORIZE CLICK PERIPHERAL AREA AS SAME INTERESTED OBJECT AREA
B

Fig. 51

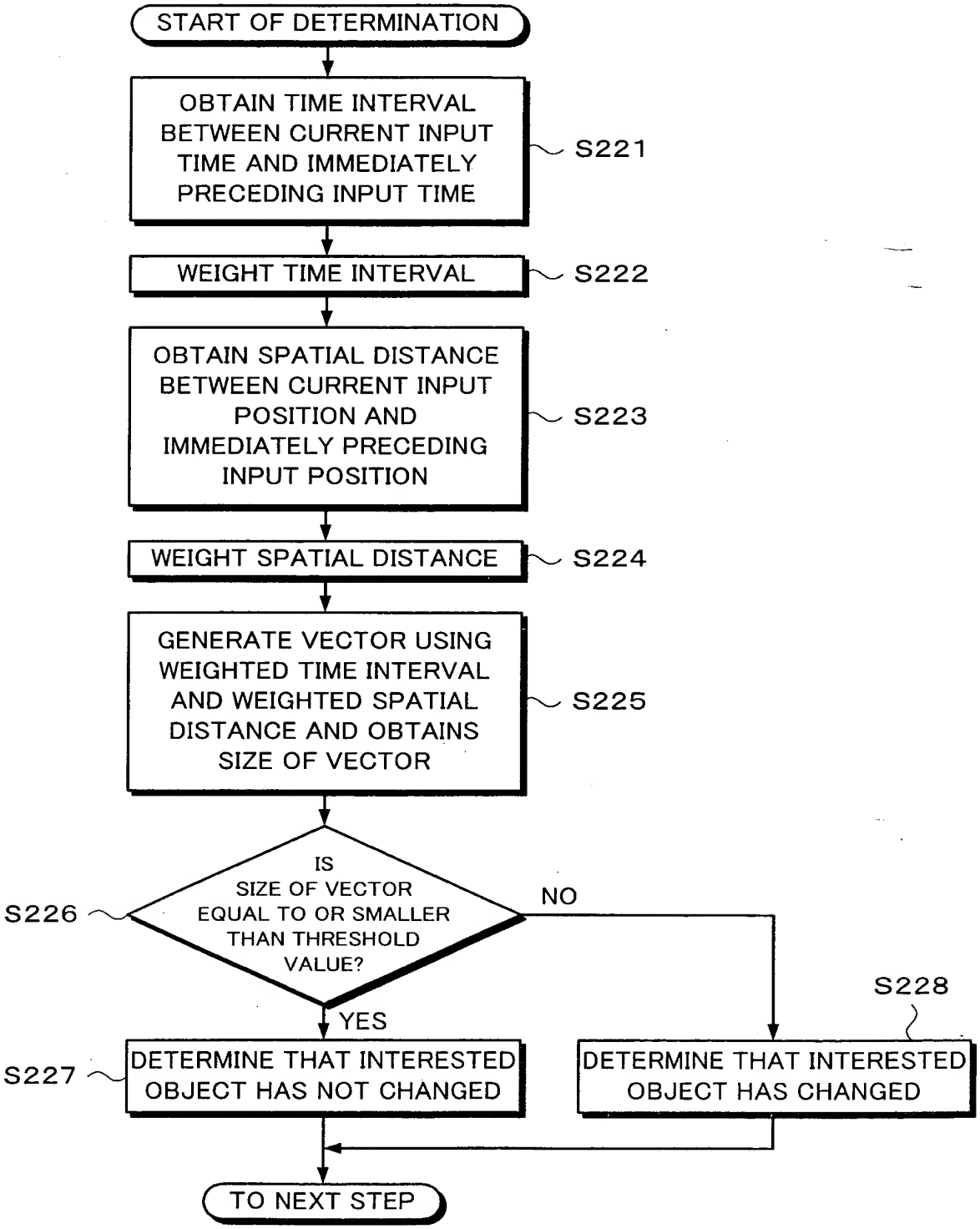

START OF DETERMINATION
OBTAIN TIME INTERVAL BETWEEN CURRENT INPUT TIME AND IMMEDIATELY PRECEDING INPUT TIME
S221
WEIGHT TIME INTERVAL
S222
OBTAIN SPATIAL DISTANCE BETWEEN CURRENT INPUT POSITION AND IMMEDIATELY PRECEDING INPUT POSITION
S223
WEIGHT SPATIAL DISTANCE
S224
GENERATE VECTOR USING WEIGHTED TIME INTERVAL AND WEIGHTED SPATIAL DISTANCE AND OBTAINS SIZE OF VECTOR
S225
IS SIZE OF VECTOR EQUAL TO OR SMALLER THAN THRESHOLD VALUE?
S226
NO
YES
S227
DETERMINE THAT INTERESTED OBJECT HAS NOT CHANGED
S228
DETERMINE THAT INTERESTED OBJECT HAS CHANGED
TO NEXT STEP

Fig. 52

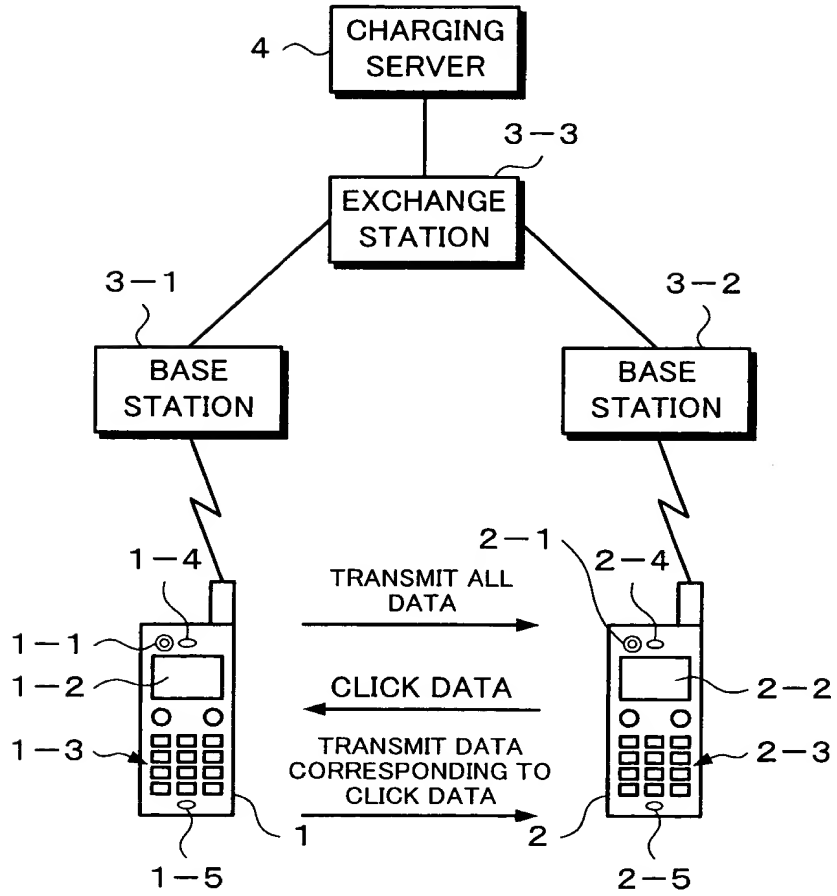

4
CHARGING SERVER
3−3
EXCHANGE STATION
3−1
3−2
BASE STATION
BASE STATION
1−4
2−1
2−4
TRANSMIT ALL DATA
1−1
1−2
CLICK DATA
2−2
1−3
TRANSMIT DATA CORRESPONDING TO CLICK DATA
2−3
1
2
1−5
2−5

Fig. 53

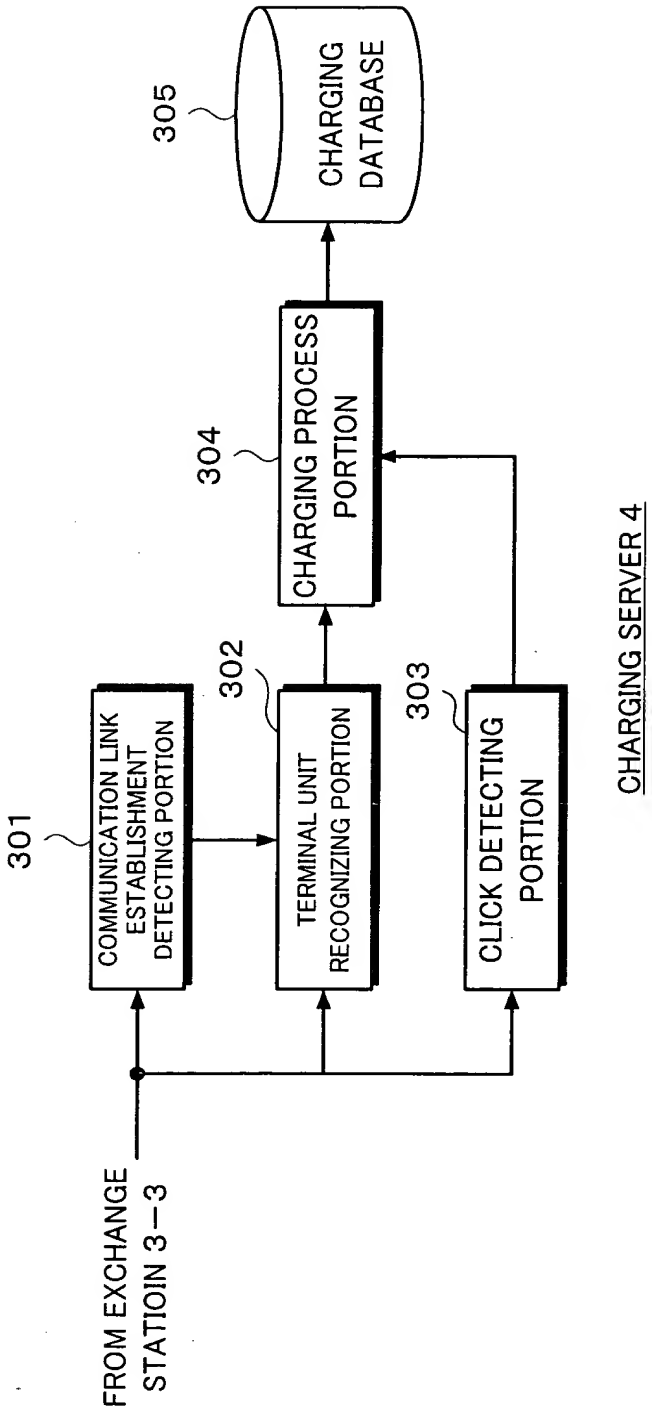

305
CHARGING DATABASE
304
CHARGING PROCESS PORTION
302
303
301
COMMUNICATION LINK ESTABLISHMENT DETECTING PORTION
TERMINAL UNIT RECOGNIZING PORTION
CLICK DETECTING PORTION
CHARGING SERVER 4
FROM EXCHANGE STATIOIN 3—3

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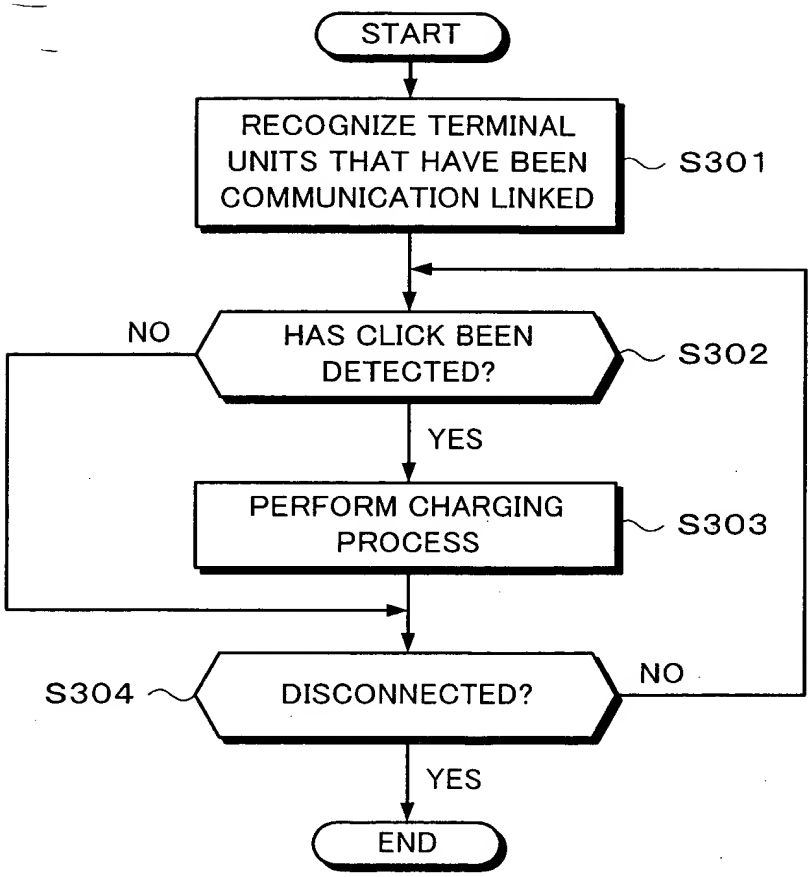
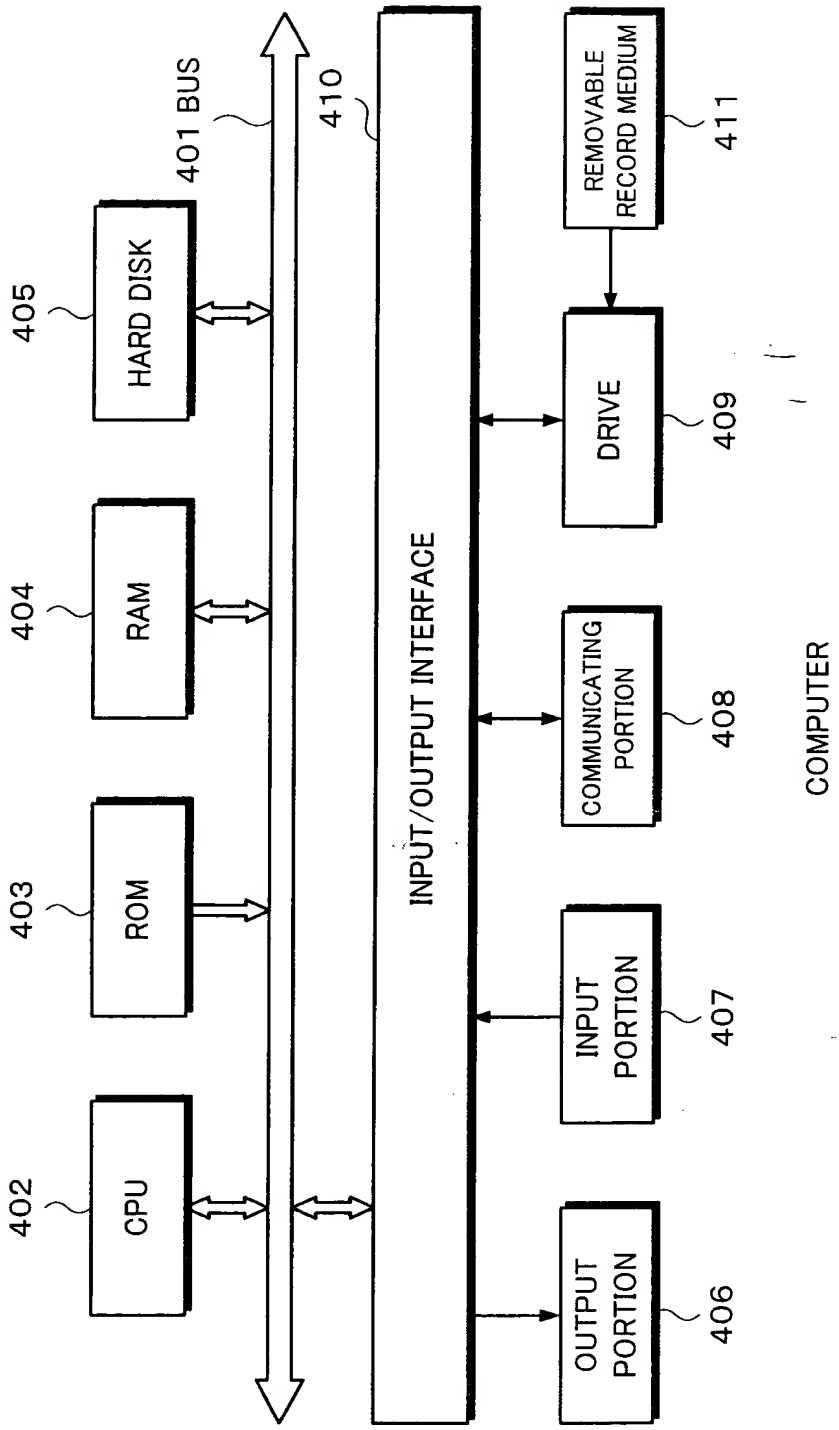
Fig. 54



TOSTSO "ht:/206SO

Fig. 55



DESCRIPTION OF REFERENCE NUMERALS

1	TERMINAL UNIT (TRANSMITTING APPARATUS)
2	TERMINAL UNIT (RECEIVING APPARATUS
3-1, 3-2	RADIO BASE STATION
4	CHARGING SERVER
13	BACKGROUND PICTURE EXTRACTING PORTION
14	OBJECT EXTRACTING PORTION
22	COMBINING PROCESS PORTION
31	ENCODING PORTION
34	DATA AMOUNT CALCULATING PORTION
41B, 41F	DIFFERENCE CALCULATING PORTION
42B, 42F	HIERARCHICALLY ENCODING PORTION
44B, 44F	LOCAL DECODER
51	RECEIVING PORTION
62B, 62F	STORING PORTION
71	BACKGROUND PICTURE WRITING PORTION
73	BACKGROUND PICTURE MEMORY
75	OBJECT MEMORY
77	COMBINING PORTION
142	CPU
146	DISPLAYING PORTION

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201 PICTURE MEMORY

203 STILL AREA AND MOVING AREA DETERMINING PORTION

210 MOVING OBJECT CONNECTING PROCESS PORTION

211 STILL OBJECT CONNECTING PROCESS PORTION

214 OBJECT EXTRACTED RESULT MEMORY

231 INPUT PICTURE STORING PORTION

234 STILL AREA AND MOVING AREA DETERMINING PORTION

236 INTERESTED OBJECT AREA CATEGORIZING PORTION

237 INPUT TIME INTERVAL CALCULATING PORTION

238 INPUT POSITION DISTANCE CALCULATING PORTION

239 INTEREST CHANGE DETERMINING PORTION

301 COMMUNICATION LINK ESTABLISHMENT DETECTING PORTION

303 CLICK DETECTING PORTION

304 CHARGING PROCESS PORTION

402 CPU

408 COMMUNICATING PORTION

411 REMOVABLE RECORD MEDIUM

1013 BACKGROUND PICTURE EXTRACTING PORTION

1014 OBJECT EXTRACTING PORTION

1022 COMBINING PROCESS PORTION

1024 CLICK DATA INPUTTING PORTION

1025 CLICK DATA TRANSMITTING PORTION

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